COAL AGE

The Weekly Journal of the Coal and Coke Industries

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Export Possibilities

DEMAND for coal for export has only begun, if the threatened strike in England takes place. A shutdown of coal production in the British Isles of even a few weeks will turn the eyes of every coal-consuming nation to the United States as the only source of supply. A prolonged strike would set the world begging at our ports instead of merely bidding for coal.

Evidence of Good Faith

QUICK response by the Tidewater Coal Exchange to the urgent demand that rules be amended and adopted to eliminate the possibility of speculation in tidewater coal has earned for this organization the commendation of any who suspected the shippers using this helpful medium of any desire to do other than play fair. The interest of the jobbers and the larger producers of bituminous coal can never from the very nature of their methods of doing business lie along the same line, but the fact that when the test came they were able, as they did in Washington recently, to sit around the same table and agree upon a common method of procedure to meet a public emergency is indeed a most helpful sign of co-operation rather than conflict.

Are Prices Going Down?

SCATTERED and recurring reports of breaks in the price of coal below the more or less accepted $10 market have given rise to much speculation as to whether a slump in prices is impending. The solid elements in the coal trade, both producers and jobbers, deplore these high prices, and of course all consumers who are called upon to pay them voice even more strenuous objections. The prices are as high as they are because of the consumer's anxiety and his urgent bidding. A real drop in prices will come when the consumer decides that if he will but hold off a short time he can secure a lower price, which he can do at any time, providing, of course, that he does not require coal for immediate consumption.

Wholesale indictments of alleged coal profiteers by the Department of Justice cannot be expected really to reduce prices. The consumer alone can bring them down. We are glad to note that the consumer is getting over his fear and is using judgment in his buying of coal. The downward trend will be slow at first but will gain momentum if production keeps up. A good-sized drop in prices now would be extremely helpful to the industry because it would discourage the fair-weather operator and allay impending labor trouble.

Recent advices as to the way the demands for wage increases are being settled give reason for the prediction that prices cannot drop to a level that in the viewpoint of the consumer would be considered reasonable compared with those of last April. In the middle West wages of daymen are being advanced 25 per cent on top of the increase of April and the miners are demanding, and doubtless will receive, some advance. This means greater costs of production, below which there is no prospect prices will drop within the year to come. Bottom levels of prices will therefore be reached before most buyers realize it, for the agitation for wage changes is not confined to the middle West but has made as much progress in central Pennsylvania. The Eastern market shows more evidence of recession than the West, where strikes have restricted production, but the drop in the East will not be as marked or as sudden, when it comes, as in the West.

Preparation for Wage Negotiations

IN THE first of a series of three articles on the consulting economist in wage controversies appearing in this issues of *Coal Age* pointed reference is made to the fact that it was left to the anthracite operators to puncture the statistical balloon of Mr. Lauck. We would like to add that it remained for an engineer, rather than a lawyer to turn the trick. The interest and sympathy of *Coal Age* with the engineering profession are too well known to need comment and we are particularly happy in this instance to point to the achievement of an engineer as a leader in industry. The anthracite operators under the leadership of S. D. Warriner so far outpointed, in their presentation before their particular strike commission, the bituminous coal operators before theirs that it certainly is not amiss to suggest that the bituminous operators take heed and do a better job next time.

The principal difference in the manner in which the soft- and hard-coal operators presented their respective cases—the one before the Robinson Commission, the other before the Thompson Commission—without doubt arose because of the lack of unity among the soft-coal operators as compared with the solidarity of the hard-coal men. Bituminous-coal operators at no time had a definite, consistent program of what they were going to do. Unable to agree upon a leader or upon a program, the soft-coal men hired a lawyer who, though able in law, was lacking in knowledge of coal and failed lamentably in digesting and presenting his case. Therefore the presentation of the bituminous operators was a series of star plays but with no team work, while that of the hard-coal men was obviously well considered beforehand and presented with precision and force.

Perhaps the very fact that the bituminous men were from so many fields operated to prevent unified action. If that be the case and it is true that the Central Competitive group is permanently disbanded as a medium for negotiating with the United Mine Workers, there may perhaps develop in some of the several states comprising this group, if not in the outlying fields, a technique in handling labor controversies both in private

and in public negotiations comparable to that staged by the anthracite operators.

There are sufficient men of vision among the bituminous operators in union fields who see and continually urge the necessity of persistent and continued study of labor problems and the accumulation of data designed to combat the aggressive demands of the union miners. The old way of negotiating the wage contract through barter behind closed doors and oratory in public has passed. The younger and more aggressive men in the bituminous industry know this but are handicapped in their efforts by the tenacity with which the old leaders with the time-worn methods of twenty years ago persist in clinging to the council table of the soft-coal men.

It might be suggested that if bituminous coal operators would spend as much in the next twelve months in the accumulation and study of data bearing on the labor question in their industry as on the spur of the moment they paid in legal fees for representation before the Bituminous Coal Commission, they would be buying the best kind of insurance against another lamentable fiasco.

Will New England Take the Coal?

COAL is now being forcefully diverted to tidewater and in a specified large volume for New England, but no congestion at the ports has so far resulted from this movement, and to the everlasting credit of the coal men of Boston, who have formed an emergency organization under the inspiration of Mr. Storrow to handle "S.O. 11" coal, buyers are connected up promptly for all coal shipped under the order. Emergency dispatch has characterized the handling of the New England soft-coal situation from the first action by the Interstate Commerce Commission to the organization of the special committee in Boston and the firm grip on the situation taken by the coal shippers and railroad officials. The coal is moving without delay and without interference with transportation.

Criticism of Service Order No. 11 is plentiful, both because of the pressure used to secure the order and for the alleged advantage in its operation being taken by New England consumers. The desire for larger supplies of soft coal and the demand for Federal support in getting it originated in New England, but the method of getting it there was devised by the coal operators, who patently were of the opinion that New England should have the coal and that the price should be reasonable. Now that the order is in operation at the tidewater ports and New England is in a tactical position to obtain price concessions, there are many who speak lightly of New England's need for coal when her buyers are offering $5 to $7 per ton on a $10 market.

Many elements enter into the New England soft-coal trade and one should examine all the facts before being too critical or concluding that after all this favored section of the Northeast has been crying wolf once too often. The consumers of bituminous coal in New England may be classified as between public utilities—including municipal and state institutions—railroads and industrial plants. There are also the retail dealers, who buy some coal for domestic consumption but whose largest market is really industrial. One-half the total it taken by the railroads, public utilities and retail dealers; the other half is consumed by industrial establishments.

Industries are paying the market price for their coal, taking it for storage and current consumption with very little objection. It is estimated on good authority that the stock of coal in the hands of industrial consumers in New England has more than doubled in the last ninety days. It does not follow, however, that when industrials are stocked up to the point of repletion the demand for soft coal in New England will cease. The railroads, retail dealers, public utilities and public institutions also must have storage coal to carry them over the winter.

Retailers purport to be fearful of accumulating large stocks at high prices—$8, $9, $10 or more per ton—because even with contracts on their books for the sale of this coal a break in the market might find them unable to move it. Nevertheless these retailers are the sole source of supply of a considerable number of industrial plants and some public institutions throughout New England. Municipalities and other public departments and institutions are holding back the purchase of coal until they can obtain it at a price which they consider reasonable. It is understood that there is no difficulty in making sales at $6 per ton to consumers of this class, although very little free coal is available to them at that price. It must be obvious to everyone that the railroads cannot afford to pay $10 per ton on any considerable portion of their requirements and stay in business. The same applies to municipalities and to public utilities. It is no wonder then that they are holding back waiting for the reduction in prices that they feel is bound to come when coal has been accumulated at tidewater loading ports as a result of Service Order No. 11.

There have been no undue accumulations of "S. O. 11" coal at tidewater points for which buyers have not been found. It is doubtless true that by far the larger part of the coal moving under this order from New York, Philadelphia and Hampton Roads is in fulfillment of contracts, every shipper with a New England contract having immediately taken advantage of the provisions of the order to meet his quota by shipping on his contracts.

Difficulty has been experienced at Baltimore because the high-volatile coal tributary to this port is suitable only for railroads and gas plants in the New England trade. Railroads are reported to have offered $5 for this coal, but, although the price is admittedly a reasonable one, no large movement at that price has been reported so far. The unwillingness of the railroads to give the operator more than 100 per cent profit is but natural.

The outlook in the New England market may be briefly stated. Industrial consumers, representing half the soft-coal consuming element in that section, have been and are taking coal at the market, high as it is, and they have been stocking coal for more than two months. This class of consumer will be out of the spot market before any other. They can afford to pay any price, as is evidenced by the case of one industrial plant that is reported to have closed a contract for this winter's delivery at a cost laid down of $20 per ton, which means but 30c. cost for coal on a manufactured product selling for more than $100.

The other classes of soft-coal buyers in New England need the coal and in the last analysis will pay what they have to for their requirements. No one can criticize them for taking advantage of every possible means of beating down the price below $10, and no one can justify charging them that price for their requirements.

Roads to Ask I. C. C. Aid in Inforcing Intrastate Raise

Alfred P. Thom, general counsel for the Association of Railway Executives, has announced that in the event of the refusal of any state commission to increase intrastate rates to the level of interstate rates, appeal would be made to the Interstate Commerce Commission to overrule the state body. Mr. Thom contended that the commission had this authority under the Transportation Act. He also has stated that the presentation of the railroads' case to the Federal commission was predicated upon action by the state commissions with relation to intrastate rates similar to that by the Federal commission with relation to interstate rates.

Coal Exports Increase $56,471,282 In Value in a Year

During the fiscal year 1920 22,976,325 tons of bituminous coal, worth $132,299,978, was exported from the United States, compared with 18,152,337 tons, valued at $75,826,696, in the preceding year. In addition, bunker coal laden on vessels engaged in foreign trade in 1920 amounted to 836,453 tons, valued at $7,233,478. Canada took nearly half of the bituminous coal exports of 1920, receiving 10,470,516 tons. Italy with a total of 2,862,773 tons stood next and Cuba with a total of 1,243,098 tons was third.

Canada's Mineral Output Slumps

The total estimated value of the metal and mineral production of Canada in 1919 was $173,075,913, which is less than the total value reached during each of the three preceding years. Compared with the production in 1918, valued at $211,301,897, a decrease of $38,225,984, or 18 per cent, is shown.

Canadian Coke Ovens Show Large Byproduct Yield

Coking ovens installed at Anyox by the Granby Consolidated Mining & Smelting Co. for handling Cassidy coal have proved a success. From 420 tons a day of this coal there are being produced 300 tons of metallurgical coke, while the byproducts recovered include 5,000 gallons of coal tar, 800 gallons of motor fuel and five tons of ammonium sulphate.

Colorado Fuel & Iron Earnings Increase Nearly Four Millions

The report of the Colorado Fuel & Iron Co. for the quarter ended June 30, 1920, shows gross receipts of $14,239,347 as compared with $10,529,415 in the corresponding period in 1919, while net earnings from operation increased to $2,130,272 from $1,144,316 in the June, 1919, quarter. After deductions for interests, taxes and other charges balance for the quarter was $1,546,881, as compared with $627,154 in the year before.

Commerce Commission to Probe Prepayment Regulations

On Aug. 17 the Interstate Commerce Commission ordered the suspension from Aug. 18 to Dec. 16, pending investigation, of regulations proposed by the railroads requiring prepayment of freight charges on traffic to points in Canada.

NEWS BRIEFS

Terse Items Chronicling Events of Interest to the Industry

Chicago & Alton to Spend Million For Coal Cars and Locomotives

President W. G. Bierd of the Chicago & Alton Railroad Co. has arranged for a loan of about one million dollars for the construction of five heavy freight locomotives and 500 coal cars. The company will utilize wheels, trucks and running gear saved from coal cars condemned on account of wornout bodies. The Chicago & Alton is handling a large amount of coal tonnage, the development of the Standard Oil mine properties at Carlinville and in the Springfield district having become among the largest in the central West.

Sixty Miles of Loaded Coal Cars Jam Tracks in Maryland

Sixty miles of loaded coal cars are choking the roads between Brunswick and the Curtis Bay terminals, Baltimore, according to President W. C. Byers of the Western Maryland R.R., who asserted that the present congestion, due to the failure of ship owners to load the coal and to the laxity in the issuance of coal permits, was the worst he had ever known. This congestion is the more deplorable, he said, in that there is an urgent demand for coal in New England and elsewhere and the idleness of so many freight cars will cause production at the mines to suffer.

Through Freight Rates in Canada Are Increased

The Dominion Board of Railway Commissioners has granted increases in through rates to United States roads in Canada to conform with those recently approved by the Interstate Commerce Commission at Washington. These increases apply to all commodities except coal and coke, and are effective on or after Aug. 26.

Canadian Trainmen Ask 100-Per Cent Raise in Wages

Canadian Pacific Railway trainmen in the western division on Aug. 17 presented claims for wage increases of from 50 to 100 per cent before the Board of Railway Conciliation in session at Winnipeg.

Dr. Eaton to Campaign for Republican Ticket

Dr. Charles A. Eaton, associate editor of *Leslie's Weekly*, declined to be a candidate for the Republican Congressional nomination in the Fourth New Jersey District, but has accepted the invitation of the Republican National Committee to devote his whole time during the campaign to speaking in some of the larger cities in the East and West.

Trade Board to Hold Hearing on Price Guarantees

Representatives of producing and distributing concerns in more than fifty industries and trades have been invited by the Federal Trade Commission to participate in a discussion before it Oct. 5 with the object of determining whether the business practice of "guarantees against decline in price" in selling commodities shall be declared improper under the commission's regulations.

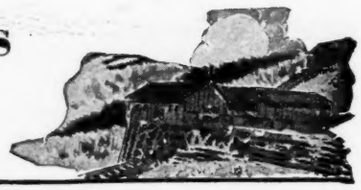
100 Women Mine Pickets Battle With Police

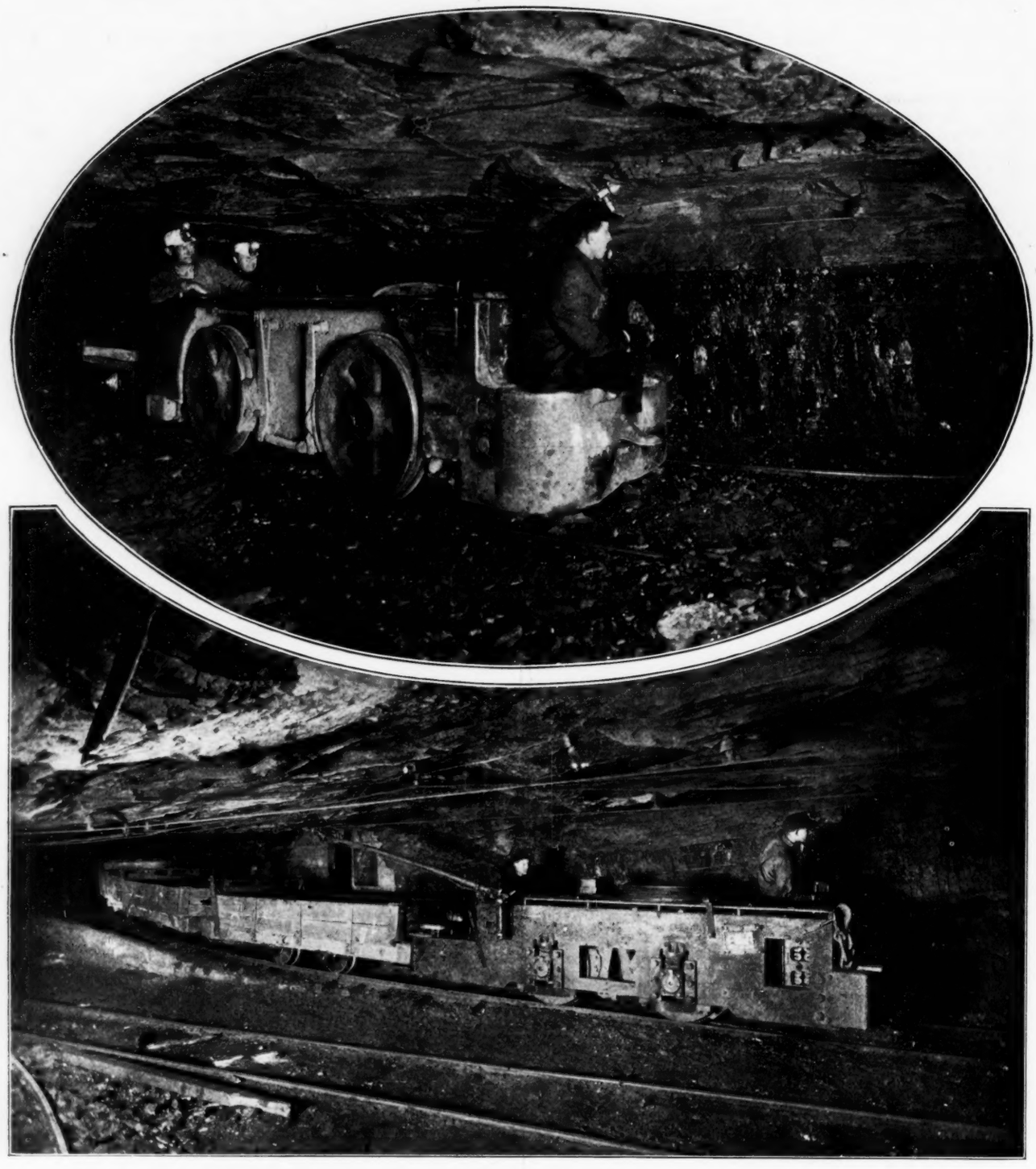
One hundred foreign-speaking miners' wives gave battle to the city police Aug. 24 in the Pittston section when the latter attempted to disperse a mob of women. The women intended doing picket duty at the No. 6 colliery of the Pennsylvania Coal Co. and had persuaded several men to return to their homes before the state police appeared.

Railroads Show Deficit for May

A deficit of $13,284,985 was reported by the railroads to the Interstate Commerce Commission as a result of operations in May as compared with earnings in May last year of $30,124,911. For the five months ended with May the operating income of the carriers was $21,294,679, against $90,863,877 for the same period in 1919.

Through the Coal Fields With a Camera





The Equipment That Has Revolutionized Coal Mining

Many times it has been stated that one reason for the high cost of coal in England has been due to the opposition in that country to the use underground of electric locomotives. It would be almost essential to abandon many American coal mines if the locomotive were eliminated. Many an early mine went as far as the three-mule team permitted and closed down, the cost of hauling being at least one-half as high as the cost of mining the coal.

Above—a Jeffrey machine belonging to the Kanawha Central Coal Company, working in the Black Band Vein No. 2. Below—a cable-reel locomotive, the property of the Hudson Coal Co., taking a trip of empties.

Waste Gases from Beehive Ovens Supply Power Needed in Star Junction Plant

By Clyde R. Weihe
Star Junction, Pa.

Heat Given Off by the Ordinary Beehive Oven During the Coking Process May Be Conducted to and Through a Boiler or a Boiler Plant, Thus Generating Enough Power for All Mining Purposes—Heat Per Oven in 48-Hour Cycle Supplies 21 B. H.p.

JUDGING from the present tendency to conserve the fuel supplies of the nation, we may safely predict that the heat lost by the beehive coke oven will soon be used by coal-and-coke companies as a means of producing the power needed for all purposes in and about the mines.

This means of generating power is no longer an experiment but an accomplished reality. It has been installed and operated successfully for the last fourteen years by the Washington Coal & Coke Co. at Star Junction, Pa. By heat from the ovens this firm makes all the electric power necessary to drive fourteen Sullivan shortwall mining machines, eight 13-ton and six 6-ton locomotives, one 500-hp. stationary haulage motor, three electric mine pumps, six Covington coke machines, two electric larries, four shop motors at the various shops and an outside electric pump which is used to supply water to more than 600 houses.

In all, eighty-two electric motors are thus operated with an aggregate capacity of 2,336 hp., to which may be added several thousand electric lights. Of course, the motor load is largely intermittent and self-compensating, otherwise it would be too great for the present generating equipment.

A general idea of the appearance of the power plant can be gained from the headpiece. This shows the waste-heat ovens in operation. Had this picture been taken with the trunnel heads of the ovens open it would have been blurred on account of the flames rising from the ovens. This would have been especially evident had the photograph been taken immediately after charging. The same illustration likewise shows the coke-drawing machine and the headframe, tipple and coal bin of No. 1 plant.

The original installation as built in 1905-6 consisted of fifty waste-heat ovens, three 320hp. Stirling boilers and two 450-hp. cross-compound non-condensing Buckeye engines direct-connected to Westinghouse 300-kw. direct-current three-wire 275-500 volt generators. These latter units are designated as Nos. 2 and 3 in Fig 2. The original boilers are Nos. 1, 2 and 3; later No. 4 boiler was added as well as a 600-hp. cross-compound non-condensing engine direct-connected to a 400-kw. direct-current three-wire 275-550 volt generator. At the present time a boiler is being installed as No. 5 (see Fig. 2) and twenty-two more waste-heat ovens have been connected to the main flue, or conduit, as it is commonly called.

Fig. 2 gives a general outline of the ovens, their individual flues, the main flue, the individual boiler flues, the boilers, steam lines and generators. Fig. 5 is a cross-section of an oven, main flue, individual boiler flue, boiler, breeching and stock. Fig. 3 shows the ovens and the main flue.

About 1,000 Horsepower Is Generated

A charge ordinarily remains in an oven forty-eight hours so that each oven is drawn every other day. Ovens charged on Friday and Saturday, however, are not drawn until seventy-two hours have elapsed, that is, until the following Monday and Tuesday; the charge put in the ovens on Friday and Saturday are so heavy that they will not be fully coked before Monday and Tuesday respectively of the following week.

Strictly speaking, combustion is not completed in the ovens themselves but in the main flue. From that point the heat is conducted to the boilers. A temperature of from 1,900 deg. to 2,300 deg. F. is attained. An evaporation test conducted Jan. 10, 1920, from 6 a.m. to 6 p.m. with fifty-three ovens in operation, twenty-seven of which were charged that day, showed an average of 1,120 hp. developed in the boiler room and a maximum of 1,225 hp. during the hour from 9 to 10 a.m., when 39,218 lb. of water was evaporated from a feed water temperature of 180 deg. F. to steam at an average of 138-lb. gage pressure.

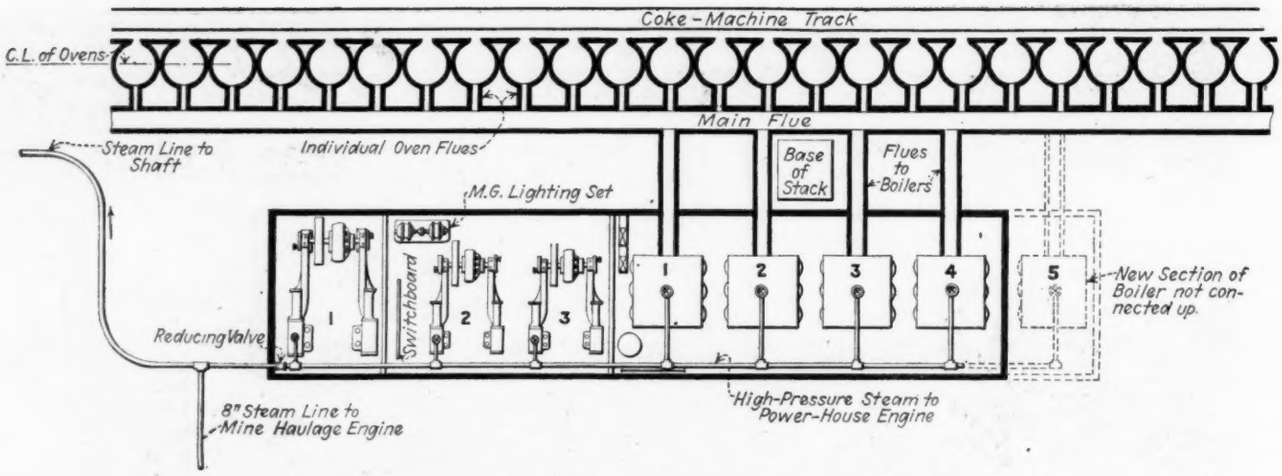


FIG. 1. GENERAL PLAN OF ENTIRE WASTE HEAT PLANT

This shows the arrangements of ovens, flues, boilers, engines, steam lines, etc. The layout of the power and boiler house is such that it may be readily extended in either direction as demands for more steam or more current make themselves felt

The minimum evaporation during this test showed 915 hp., developed during the hour from 5 to 6 p.m. This trial was conducted with only three boilers on the line, thus showing that these units were working at a slight overload. Those familiar with the demands made for power at a mine can readily see that the maximum amount was developed at a time when the demand usually is the greatest. This maximum was an average of more than 25 hp. per oven, and I have been informed that during a 48-hour period an oven containing a 48-hour charge will develop an average of 21 hp., and that without burning any more of the fixed carbon than is normally consumed in the process of beehive coking.

During this test the average power developed at the switchboard was 481.25 kw. or about 645 hp. The surplus steam went through the reducing valve shown in Fig. 1 to the No. 1 plant, where it assisted in operating a large haulage engine, a hoisting engine, a crusher and elevator engine, two air compressors and a 25-ft. mine fan. At this time there were four hand-fired boilers at the No. 1 shaft.

The load on the power plant varies from 25 per cent

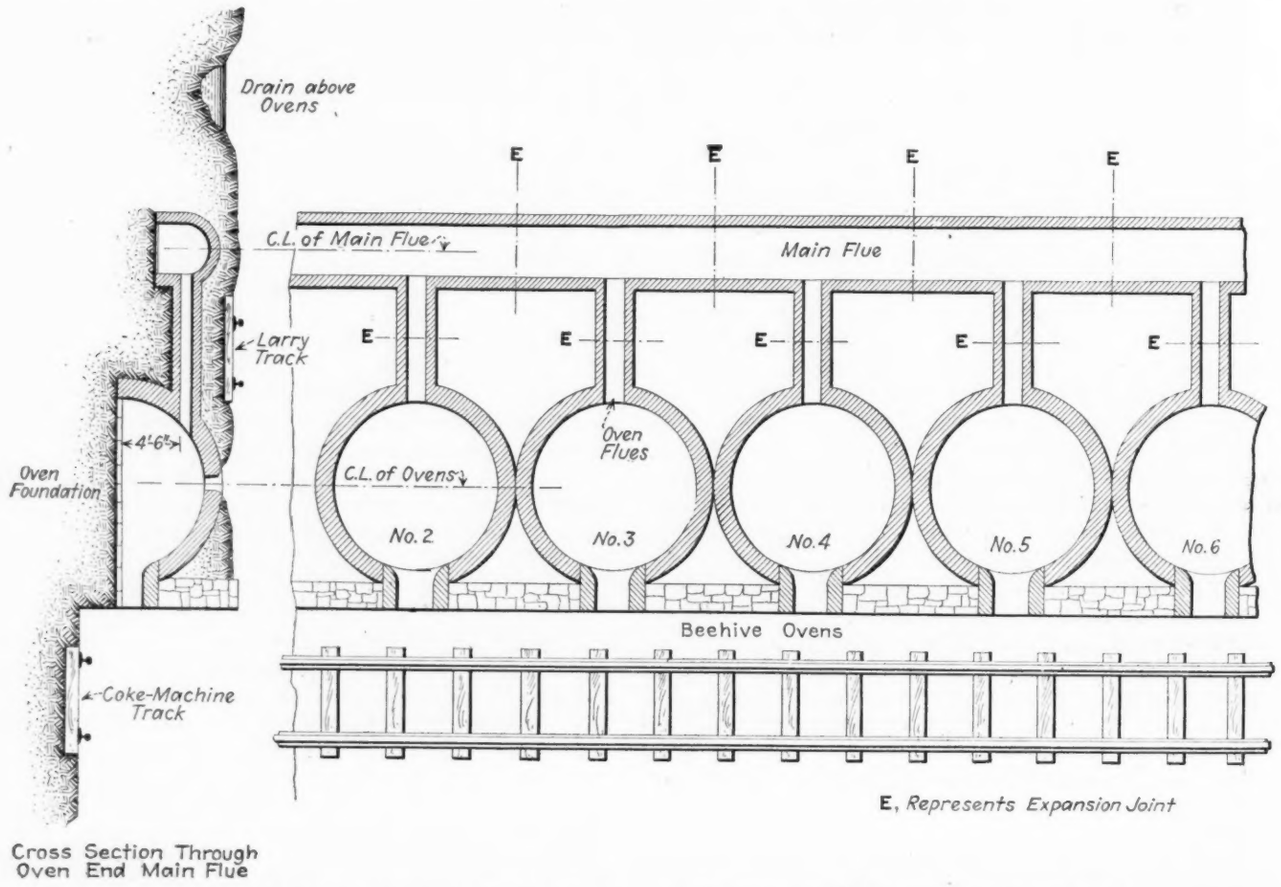


FIG. 2. DETAILED ARRANGEMENT OF OVENS, INDIVIDUAL OVEN FLUES AND MAIN FLUE

Each individual flue must be at such a height as to preclude its being clogged by the oven charge, and must be provided with an expansion joint. A similar joint is placed in the main flue between adjacent ovens.

of rating to 100 per cent overload, the maximum peaks being highly intermittent and lasting not more than ten minutes. The surplus steam during the minimum-load periods is used at the shaft. The apparatus here installed carries lower pressure and this makes it necessary to employ a reducing valve in the main header from the power house.

The ovens employed at this plant are of the ordinary beehive type except that they have flues that connect them to the main conduit. The oven trunnel head is opened only during the time of charging or when there is too much steam, as on a Sunday or a holiday. In constructing the flues, expansion joints must be provided at regular intervals, and the opening from the oven to the conduit must be sufficiently high that it will not become stopped or clogged (see O, Fig. 3). The main flue must also be provided with expansion joints and in each individual boiler flue a slot or guide must be provided for the dampers which are used in stopping off the heat when the boilers are taken out of service for cleaning or repairs.

The boilers are equipped with automatic feed-water control and are fed by a 20 x 10 x 30 in. Yough double-acting plunger pump taking water from a Pittsburgh open-feed water heater. The water is heated by the exhaust from the No. 2 and No. 3 engines.

Between the No. 1 and No. 2 engines is located a motor-generator set driven by a 145-hp. motor and generating 2,300-volt 3-phase alternating current which, after suitable transformation, is used for the lighting of the company houses.

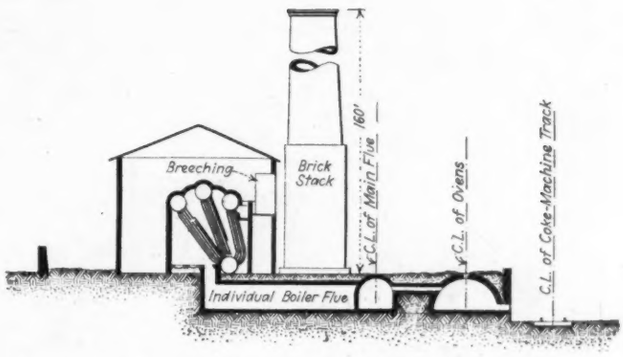


FIG. 3. CROSS-SECTION OF OVENS, FLUES, BOILER AND BOILER HOUSE

Hot gases from the ovens are brought into the boiler settings through a hollow bridgewall. Grates are of course provided for hand firing should this become necessary.

While the power generated at this plant is somewhat more than some companies might require, a smaller installation could be laid out and the height of the ordinary boiler stack increased. This means that each boiler could have its own stack instead of using a large brick stack in common such as is employed at this plant. The cross-section of each stack could be made the same as if the boiler was to be hand-fired. This would develop the same horsepower provided sufficient height were allowed to draw the gases through the conduit and boiler setting. In any event air should not be permitted to enter through the boiler brickwork, as this would lower the efficiency of the plant.

Lucerne Mines, Shaft and Two Drifts Make Current for Thirty-Two Plants

Three Practically Distinct Mines Are Joined Underground and Have a Common Tipple—Bone from Four Picking Tables, 28 Per Cent Ash, Is Used as Fuel at the Central Power Plant

BY RALPH W. MAYER
Homer City, Pa.

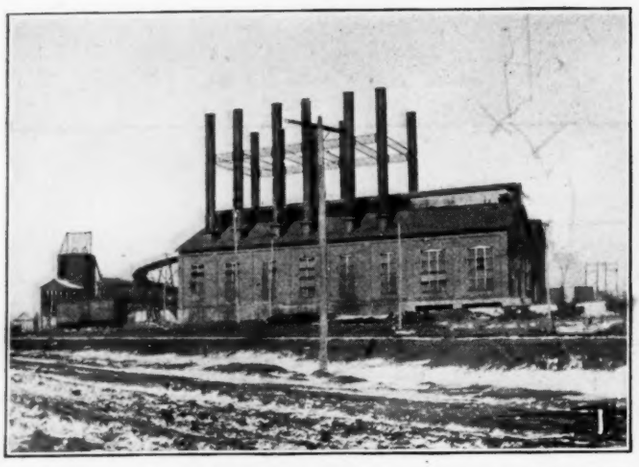
LUCERNE Mines is the name applied to the largest operation of the Rochester & Pittsburgh Coal & Iron Co. This firm has coal mines in no less than four counties of Pennsylvania—namely, Armstrong, Clearfield, Jefferson and Indiana. It is a subsidiary of the Buffalo, Rochester & Pittsburgh R.R. and most of the output of its mines is shipped over the tracks of the parent company. The plant in question, however, may be reached also by either the Pennsylvania or the Indiana County Street Ry.

Underground workings of this operation lie between Indiana and Homer City and some of the miners live in each of these municipalities. The majority of the mine workers, however, reside in Lucerne, where more than five hundred large and roomy company houses have been built. This town is provided with a gravity water system, a large company store, and a moving picture theater. The latter, as well as frequent interurban service to nearby points, affords ample opportunity for recreation and amusement.

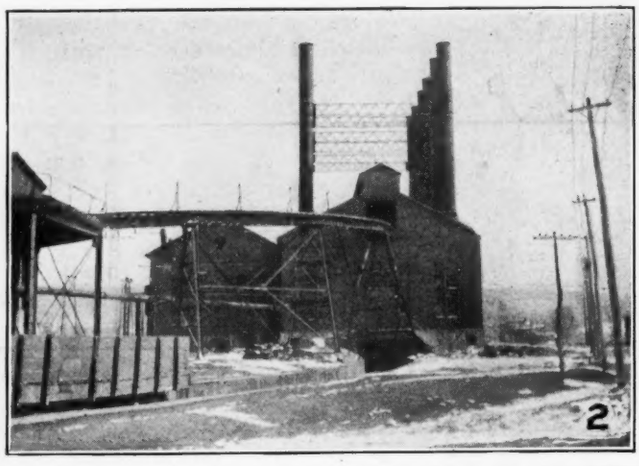
During the war this operation was worked at nearly full capacity. The daily output rose to about 5,000 tons while upon certain occasions over 6,000 tons were passed through the tipple. At times 3,000 mine cars have been dumped and 126 railroad cars loaded in an 8-hour day. The payroll then carried about seven hundred names. After the close of hostilities the output was rapidly curtailed. The portion of the mine that drained naturally was shut down and the balance was partially operated. At present the whole mine is being worked, but not to capacity.

The coal bed developed at this mine is the Upper Freeport, which at this point ranges from 5 to 7 ft. in thickness. Near the center of the bed is a band of bone 8 to 12 in. thick. Although this bone is supposed to be removed by the miners and left in the gob, the tipple is equipped with picking tables to facilitate the removal of any foreign matter that may find its way to the surface.

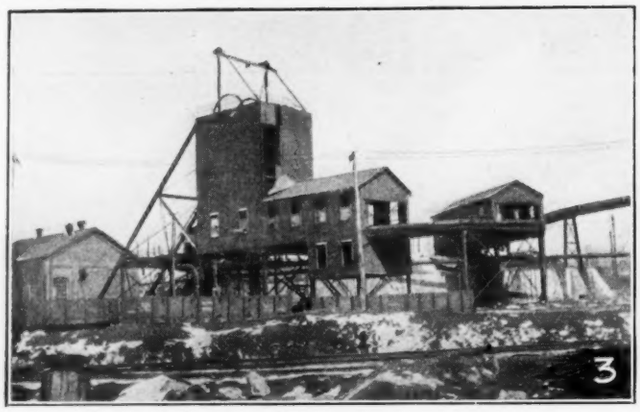
Mine cars enter the tipple upon two central tracks, are discharged by two cross-over dumps, pass to two kick-backs and then gravitate to the two empty tracks, one



POWER-HOUSE AND SHAFT HEADFRAME
LARRY-TRACK END OF POWER HOUSE



HEADFRAME AND TIPPLE, LUCERNE SHAFT
MAIN LUCERNE TIPPLE AND MACHINE SHOP



NOTE—The second illustration shows the larry-track by which the cleaned bone is brought to the boiler house bins to be directed to the stokers by downcomers, also the tracks under the boiler house by which railroad cars can be "spotted" for the reception of the ash from the stokers. The tipple in the third illustration was used in the early development, but it is now superseded by the main tipple shown in the fourth and fifth illustrations

upon either side of the loaded tracks. One man stationed on a small elevated platform controls all track switches within the tipple. Thus by means of levers, close at hand and connected to the switches by means of rods and bell-cranks, giving positive action, he runs the loaded cars to the dumps, the empties to the storage tracks and the like.

From the dumps the coal passes over shaking screens, from which the larger sizes go to four picking tables. After the bone has been removed the lump passes down chutes to railroad cars on the loading tracks beneath the tipple. The bone removed on the picking tables is thrown into hoppers terminating in chutes that lead to a conveyor. This discharges to a transverse conveyor that serves as a picking table. Here the rock is picked from the bone, which then passes to a crusher or pulverizer. After crushing, the bone goes to a storage bin, whence it is eventually removed and taken to the boiler house by a larry, to be used as fuel. The rock picked from the bone is conveyed to a bin, from which it is drawn into a car that is hauled by means of an electric hoist and cable over an elevated track to the rock dump.

Nine railroad tracks pass under the tipple. On five provision is made for loading cars. The empty storage tracks above the tipple are united in one track from which the loading tracks branch. Below the tipple the loading tracks are again united into one, from which the storage tracks for loads diverge. The grade of all of these tracks is such that cars will move by gravity from the upper end of the empty storage yard to the lower end of the loaded storage yard. A car upon any track of the empty yard may thus be shunted to any loading track and thence to any track in the loaded yard.

BURN BONE WITH TWENTY-EIGHT PER CENT ASH

The power house is situated a short distance from the tipple. An elevated track enters the boiler house near the top and from this the larry above referred to dumps the crushed bone to the boiler bunkers. Downcomers from the bunkers convey the fuel to the hoppers of automatic stokers under the boilers. After combustion the refuse—this fuel contains about 28 per cent of ash—passes by chutes to the basement of the building. Here it is loaded onto railroad cars that enter the basement by way of a cut. These cars are spotted under the ash chutes and are loaded as the ashes are discharged from the stokers. The cars move through this building by gravity.

Twelve 600-hp. Sterling boilers are installed. Now that changes have been made in the stoking equipment it is possible to operate at 60 per cent over nominal rating. Each boiler generates 960 actual boiler horsepower.

This plant is the central station supplying power to thirty-two of this company's mines operating in Indiana County. For this purpose three Curtis turbines direct-connected to General Electric generators are installed. These turbines take steam at a pressure of about 150 lb.

and exhaust into a vacuum normally maintained at about 28 in. One generator is of 6,000-kw. capacity while the other two are of 3,000-kw. capacity each. Current is produced at 6,600 volts.

The original water supply for the power plant was secured by damming a small stream not far from the plant, from which point it was pumped to the boiler house. This water caused scaling. An 8-in. pipe line has been laid to Cherry Creek about a mile away and the boilers are supplied from that source. The present pumphouse contains four centrifugal pumps all of which are motor-driven. All these machines are not in constant use, some being kept in reserve for emergencies. The total quantity of water required for both boilers and condensing plant is about 2,400 gal. per minute.

Opened as Three Separate Mining Plants

In order that the work of opening the mine might be rapid, development was started from three separate openings. These were called mines Nos. 1, 2 and 3. This appellation they still retain, although the workings are interconnected, have the same haulage and ventilation system and are under unit management. Two of the openings are drifts driven from opposite sides of a valley. The third is a shaft 192 ft. deep, located near Homer City and sunk to the bottom of a coal basin. Here three pumps—one centrifugal and two plunger machines—each with a capacity of 4,000 gal. per minute, are installed. Much of the water made by the workings, however, is drained out of the drifts which are opened in side hills just above flood stage of the creek.

A steel headframe has been erected over the shaft, and coal can be hoisted on two cages, each lifting two mine cars. Caging at both top and bottom is performed mechanically. Although this shaft is well equipped it is not now used for coal hoisting. Instead, a 5,000 ft. incline is employed to bring out the deepest coal.

Thirty-five General Electric and three Jeffrey locomotives are used for coal haulage. Three 20-ton motors, each having a 10,000-lb. drawbar pull when traveling 9.2 miles per hour, are used in main haulage. Each of these machines has six motors and six drivers upon which the weight is equally distributed. To facilitate passage around curves the middle pair of drivers is plain—that is, unflanged. The load hauled by these machines ordinarily ranges from forty-five to seventy-five cars, depending upon the grades traversed. Under certain particularly favorable conditions as many as ninety-five cars have been hauled.

In order to gain tipple height after the surface is reached the upward incline is continued through a cut in the side hill against which the tipple abuts. This incline is double-tracked, one track being used for loads and one for empties. The empty track is not provided with a trolley wire, gravity and the locomotive and car brakes being relied upon to secure and control move-

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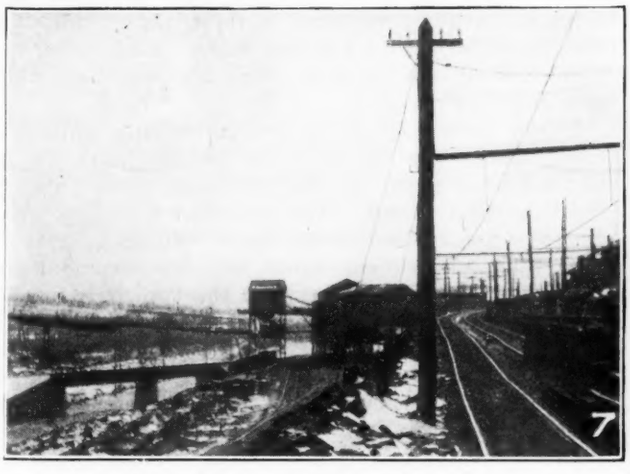
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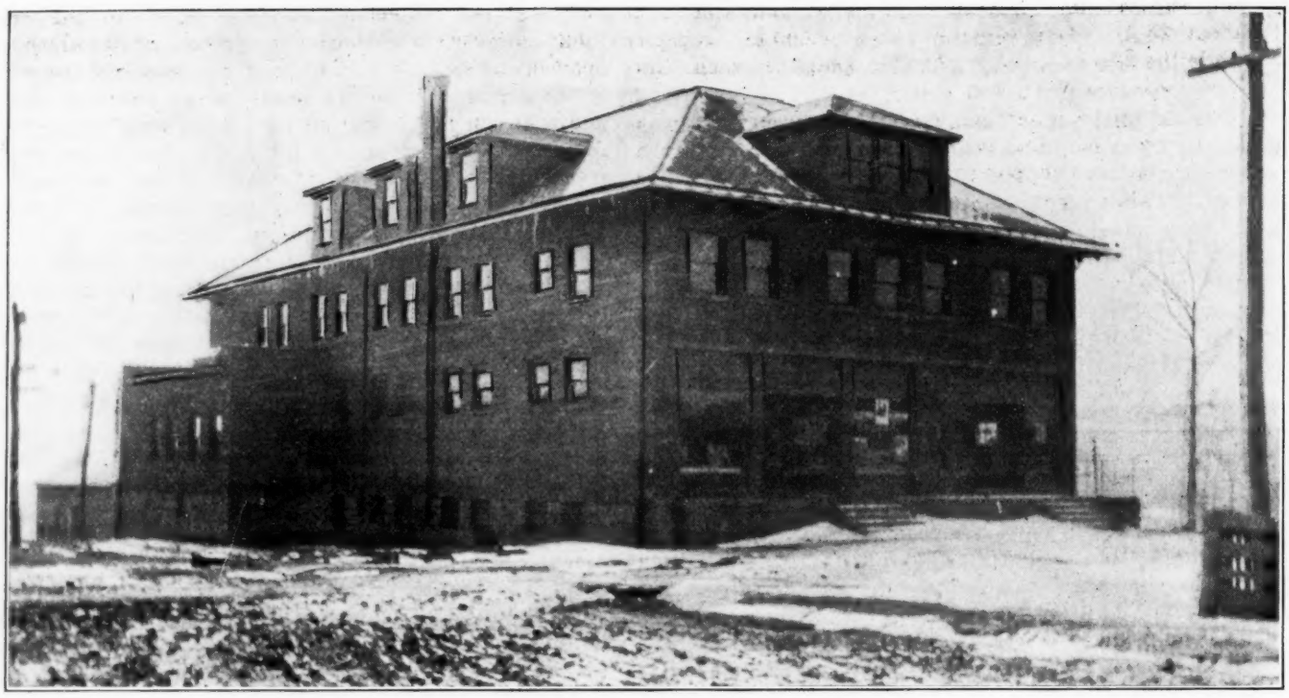
CLOSER VIEW OF NINE-TRACK TIPPLE
STEEL BRIDGE FROM TIPPLE TO ROCK DUMP

TIPPLE SEEN FROM MINE-CAR INCLINE
SUBSTATION AT OPENING OF NO. 1 MINE

NOTE—The seventh illustration shows the incline leading to the top of the tipple, some of the railroad tracks below the tipple, the railroad bridge and the bridge across the railroad by which the cars of rock reach the rock dump



COMPANY STORE OF LUCERNE TOWN, NEAR HOMER CITY

ment thereon. Rails on the loaded track weigh 60 lb. per yard, while those on the empty weigh 45 lb.

Gathering locomotives employed in this mine weigh from six to ten tons. These are provided with cable reels of the vertical type which lie close on top of the locomotives and are driven by small motors of high resistance that keep a uniform tension on the cable.

Most of the mine tracks are fairly level although some heavy grades occur. In some of the old workings inclinations as steep as 12 per cent are encountered. Over these the locomotives push empties up and bring loads down, one at a time. These grades are such that even the locomotive without load could not climb them if the rails were wet and unsanded. Experienced motormen by the judicious use of sand have little trouble, and even the coal-cutting machines go up and down under their own power. The small six-ton motors are apparently better suited to this work than the larger machines, as for some reason their wheels seem to hold to the rail better.

On the butt headings 35 to 45-lb. rails are used. On main headings 60-lb. steel is laid, while 85-lb. rails are employed on the 5,000-ft. underground slope or incline. Main haulage roads are all bonded. In most instances 000 and 0000 flexible copper bonds are installed. Holes in the rails to receive the bond terminals are drilled with a General Electric bonding drill weighing 75 lb. This can be operated by one man, although two are usually employed. About one minute is required to set up this drill, while the ¾-in. or smaller hole that receives the bond terminal is finished in a much shorter time. This machine is used also for drilling bolt holes in the ends of short or special lengths of rails.

Steel rails are largely employed in the rooms and elsewhere. Especially is this the case where light rails are used in entry driving. Here the light temporary track is taken up and replaced with heavier steel.

The mine cars employed are of two-ton capacity. Two types of couplings are used, the older of which is being gradually discarded. This consists of two clevises joined by three links. Each clevis, as is common practice, fastens to the drawbar by means of a pin. The new type of coupling consists of a single long link with a pin in either end.

Atlas explosives, mostly coalite 2D, are used. Detonization is secured by means of No. 6 iron-wire detonators. The miners carry their supply of explosives into the mine in wooden boxes constructed without metal. Each box will hold nine sticks of powder. Boxes of similar construction are used for the detonators.

The last car on the man trip is provided with a wooden box into which are put the boxes of detonators. Picks, shovels, drills, and other tools are then deposited in the next car while the men ride in the cars still farther forward. A second locomotive drawing one car follows the man trip at a safe distance. In the car is placed a wooden box in which are deposited the boxes containing the explosives. The powder car stops at points where men leave the man trip, allowing each miner to get his box of explosives. Clay for tamping is placed at convenient points along the entry, and the coal after being undercut by machines of the chain or continuous type is drilled, loaded and shot down. Each miner carries a battery and cable and fires his own shots whenever they are prepared.

Edison battery lamps are used in working, while Wolf safety lamps are employed for testing, although the mines are not gassy and the fire bosses make no morning inspection, except in the innermost workings, where traces of gas are sometimes found. No open lights are used. The electric cap lamps are charged and issued at a substation located between the two drift mouths.

One of the details of operation at this time which is somewhat out of the ordinary is the practice of making all ventilating doors on the haulage road of a standard size and construction so that they are strictly interchangeable. Such doors are 8 ft. wide and 5 ft. 3 in. high. They are constructed on the surface, are bolted together and a supply of them is kept near the foreman's office ready for replacements in case of damage to a set within the mine or for rapid installation in case a new door is needed.

Device That Will Show the Temperature of The Depths of a Storage Pile

Losses Through Oxidation of Coal in Storage Increase with an Increase of Temperature — Coalometer Shows Thermal Conditions Throughout the Coal Pile and Gives Warning When the Rise in Temperature Becomes Dangerous

By R. P. Nichols
New York

A NEW device has been introduced for indicating the thermal conditions existing in a pile of stored soft coal. A description of this instrument doubtless will be of interest to those who store bitmuinous fuel in quantity. It is known as the Thornley Coalometer.

Quoting from Porter on "Weathering of Coal," 1915: "A coal pile may be covered with snow, yet three feet below the surface of the pile the temperature may be quite high."

The instrument to be described was designed for either permanent or temporary installations, to meet the conditions encountered whenever soft coal is allowed to lie in storage for an appreciable length of time. This instrument has been perfected by the Federated Engineers Development Corporation, from a joint invention of A. W. Browne, professor of chemistry at Cornell University, and myself.

As is well known, bituminous coal has the property of spontaneously heating when exposed to the air. This increase in temperature does not always cause actual combustion in the sense that the coal burns with the presence of flame, though this condition often is encountered. There occurs almost universally, however, in stored bituminous coal a slow oxidation which in its aggregate effect is even more destructive than actual combustion because it cannot be so readily detected.

It thus accomplishes its destruction of fuel value quietly and unnoticed, extending throughout an ever-increasing zone, beneath the surface of the stored coal. This slow escape of valuable heat for which the consumer has paid is just as detrimental as if the same amount of heat had been lost by fire or other cause. Could the consumer look beneath the surface of his coal pile and definitely acquaint himself with conditions existing there, he could save himself enormous losses by using first that portion of his coal supply which showed a tendency to become even slightly heated. In other words, he could burn the heat units that are about to escape before they have had adequate opportunity to do so.

An Alcohol Thermometer Is Formed

It is for the purpose of indicating these conditions beneath the surface that the coalometer was designed. It consists of a set of temperature indicators incased in a long, pointed, steel tube, carrying at varying depths metal bulbs (corresponding to the bulbs of thermometers), and at its upper end a set of dials with pointers that indicate under all atmospheric conditions the exact temperature of the bulbs which actuate them. These bulbs and the pipes connecting them to the pressure gages are filled with alcohol, the expansion of which under increasing temperature actuates the pointers of the gages.

The hermitically sealed systems thus formed cause the pressure gages to act under the circumstances as highly reliable temperature indicators. Units built up in this way are forced down into the coal pile to predetermined depths and at various localities. Collectively they furnish definite information as to the exact temperatures existing throughout the storage pile. If an accurate record of readings from these instruments be kept the slightest rise in temperature is at once detected. Should this become excessive the consumer at once removes this particular portion of the pile, thus saving the heating value of the coal which had started to dissipate.

While coal insurance is in some measure a protection against fire, it at best merely furnishes reimbursement for fuel actually destroyed. It neither replaces the coal nor compensates the holder of such a policy for the slower leakage of heat occasioned by oxidation. Such losses are always present and in time may become appreciably destructive.

Locate Warmer Spots for Earlier Removal

If it were possible for an insurance company to measure the heating value of a coal pile and insure the owner against loss of thermal units occurring while in storage, whether by combustion or by slow oxidation, it is safe to say that the demand for such a policy would be universal. It would assure the owner of coal that each thermal unit that he had purchased would be available as fuel or that he would be reimbursed for the amount that escaped.

A set of coalometers will perform this function in an efficient manner. They indicate the exact location of hot spots as soon as they begin to form, giving warning of approaching trouble in ample time for the coal to be moved before rapid leakage of heat values can occur through excessive heating. Loss by fire can be entirely eliminated through the proper installation and intelligent use of a set of these instruments.

Tests have shown that an installation of one unit each 50 ft. in either direction will efficiently indicate temperature conditions throughout the entire pile. Thus the installation of one triple unit will protect a volume of about 50 x 16 ft. of stored coal measuring approximately 900 tons.

The accompanying illustration shows a triple unit for use in coal piles from 15 to 20 ft. deep. A galvanized steel tube, having a hardend-steel diamond-point drill at its lower end, carries three pressure bulbs, at depths of 5, 10 and 15 ft. Tubes from these three bulbs register temperatures in degrees Fahrenheit upon three dials by means of pointers provided for this purpose.

The scale on each dial, starting at 32 deg. F., runs upward. It is colored black until it reaches 120 deg.,

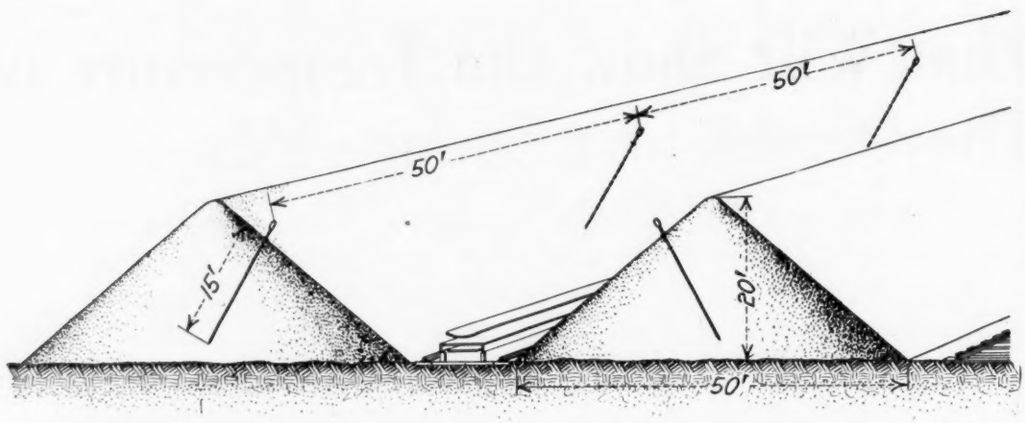


FIG. 1
Coalometers in a Stockpile
In order to show conditions existing in a large pile of coal it is necessary to place coalometers at regular intervals. As a general rule this distance should not exceed 50 ft.

where it changes to red, indicating when the hand reaches this point that there is excessive heat in this zone and warning the coal man to remove this portion of the pile. The depth of the hot spot is determined at a glance, for the dials are plainly marked 5, 10 and 15 ft. The dial showing the highest temperature thus indicates the locality nearest which the heat is generating.

These dials are inclosed in weather-tight metal cases with thick crystal faces, and the set is again inclosed in a galvanized cast-iron case. This furnishes ample protection whether the unit is in use or otherwise.

A slidable pipe wrench is provided on each unit, to aid in the rapid and easy boring or forcing of the tube to the desired depth. A large, plainly-marked lug, 12 in. below the instrument head, determines the exact depth at which the coalometer is to be placed, and renders guesswork unnecessary on the part of the man who makes the installation. The construction throughout is rugged and will allow of the quick installation, removal or storing of one or more units time after time without fear of damage to the temperature indicators themselves.

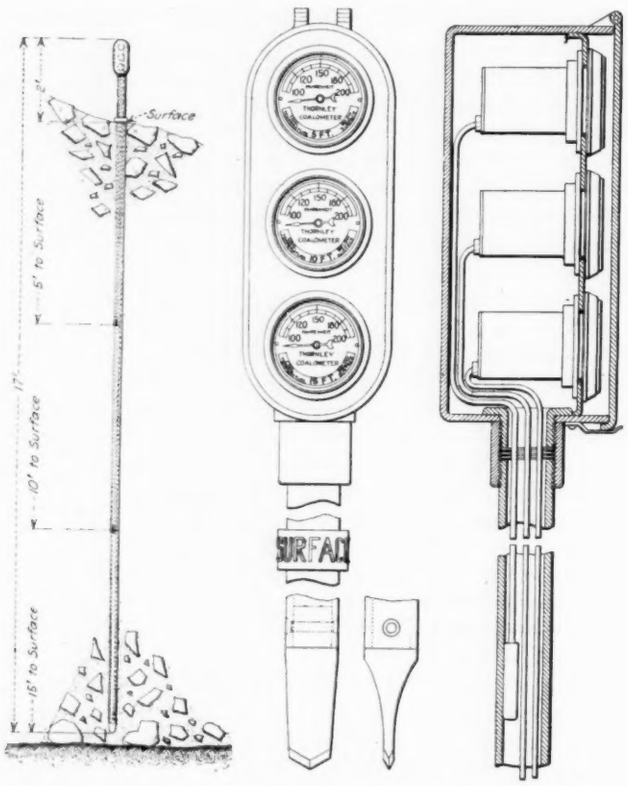


FIG. 2. DETAILS OF THE THORNLEY COALOMETER
Bulbs set at predetermined distances from either end of the instrument are connected by seamless pipes to pressure gages at the top. Alcohol within each bulb and pipe generates a definite pressure at a certain temperature this pressure is registered as a temperature.

These indicators are specially constructed to show temperatures accurately under the varying conditions encountered throughout the year. They will indicate exact bulb temperatures regardless of conditions existing at the head of the instrument and will retain their calibration under extreme vibration or violent shock.

It will readily be understood that it is necessary to use a complete installation covering the total amount of coal stored. To employ a few units only, scattered at improper intervals throughout a coal pile, would have the same relative protective value as would fire insurance on certain selected portions of the stored coal.

These coalometer units are supplied in two lengths, 12 and 17 ft. These carry, respectively, two and three temperature indicators, the bulbs being placed at 5-ft. intervals below the surface mark on the stem of the unit. This allows the unit heads to extend approximately 2 ft. above the coal pile and to be readily accessible for the reading of temperatures. A typical installation is shown in Fig. 1.

With each installation is furnished a leather-bound loose-leaf record book, each page of which covers a daily reading of the temperatures indicated by each coalometer. These records furnish complete information concerning the heat conditions beneath the surface of the fuel pile and enable the manager to determine readily what portion of the coal is losing its heating value through oxidation and at what rate.

A column on this record sheet shows the exact date at which any unit was removed, the temperature of that portion of the coal at that time, and indicates that the coal was removed from this point at that date.

Porter in his "Weathering of Coals," 1915, gives some interesting data on the loss in heating value occurring in three soft coals which had heated up only to between 158 deg. F. and 176 deg. F. It was found that the loss in heating value of these coals in fourteen days amounted to an average of 3 per cent.

From the above it is easy to calculate what losses as represented by dollars and cents may occur in storage piles. As is well known, the rate of oxidation increases with increasing temperatures and continues over long periods of time. For this reason the owner should be constantly posted as to existing temperatures beneath the surface of his coal pile. The coalometer was designed to furnish this information with great accuracy at all times.

Do Fans Operate by Centrifugal Force?

Motion of Blades Creates a Partial Vacuum and the Better Type of Fan Is That Which Protects This Vacuum so That Only Intake Air Can Reach It — Some Experiments Have Been Made to Establish These Facts

By David W. Evans

AUTHORS, schools and teachers generally have attributed the action of mine-ventilating fans to centrifugal force developed by the revolution of the air within the fan. Notwithstanding this general accord forty years of testing and experimenting with fans have convinced me that the teaching is wrong.

My view of the matter is that air, with its properties of expansion and mobility, is not subject to the same laws of centrifugal force as is a more solid medium. Long study and experimenting with fans have led me to conclude that in order to make air follow the same laws as solids its mobility must be restrained as in an air compressor or air pump.

Before going further let me refer to a few authoritative references on the mine fan. Perhaps the earliest of these analyzing the action of the fan as due to centrifugal force occurs in Beard's "Ventilation of Mines" (page 18), published in 1894. It reads as follows:

> The method here adopted for determining the static pressure due to the action of the fan depends, as previously stated, upon the centrifugal force developed by the mechanical revolution of the air contained between the blades of the fan. This contained air possesses a certain weight and, compelled to revolve at a certain speed by virtue of its mechanical environment, will develop a certain centrifugal force or outward pressure.

G. M. Williams, then an inspector of mines in Pennsylvania, published a small book or pamphlet in which he described the air as flowing along the face of the fan blades and increasing in velocity under the influence of the laws of centrifugal force. More recently Joseph J. Walsh, another Pennsylvania mine inspector, published a book (1915) entitled "Mining and Mine Ventilation." In describing ventilation by means of a fan, page 106, the author states as follows:

> If a fan, while working on a mine, is exhausting air therefrom the fan is then, due to centrifugal force, creating a partial vacuum at its center or axis; the extent of this vacuum depends on the peripheral or rim speed of the fan.

The reference library of the International Correspondence Schools, Scranton, Pa. ("Mine Gases and Ventilation," Sec. 15, page 6.) describes the principle of action of the centrifugal fan as follows:

> The principle on which a centrifugal fan acts is as follows: The air contained between the fan blades has a certain weight, and when the fan is revolved a certain force is developed, called a centrifugal force, that acts on each particle of the air in revolution and tends to throw it outward or away from the fan shaft and toward the circumference. The air within the fan, being free to move in a radial direction, when acted on by this force moves outward or toward the circumference of the fan. This movement of the air outward in a radial direction causes an area of depression or partial vacuum within the fan, and the outside air, under the influence of the atmospheric pressure, at once flows into this area of depression.

In view of these statements of well known authorities in fan ventilation, I realize that it is a serious undertaking to attempt to combat what has been so long accepted as the underlying principle of the action of a mine fan and must therefore proceed with caution. We all agree that air will remain at rest until it is disturbed by heat or some mechanical means, when it will flow from a point of higher to a point of lower pressure, the latter point being termed a "depression" or "partial vacuum."

In the movement of air in mines we have used *heat* in furnace ventilation, and *mechanical means* in fan ventilation to produce the desired depression or vacuum and the consequent flow of air. In the case of a mine fan the forward movement of the blades impels the air in front of each blade, leaving a vacuous space behind the blade, with the result that air from the mine rushes toward this vacuum. The fundamental problem presented in the design of a fan is to so protect the vacuum formed in the rear of each revolving blade that this vacuous space cannot be filled from any source other than the mine airways.

My reading of Mine Inspector Williams' article on mine fans, to which I have referred, was followed by an interesting discussion with him when I illustrated my idea by referring to what took place when a fast train swept over a place where considerable paper had been scattered. In front of the train there was no commotion; but at the rear the papers were swept along by a mighty rush of air that followed the last car of the train.

At one time I collected a wagonload of old papers serve the effect produced by a fast train that was soon to pass through the cut. There was no observable movement of the papers ahead of the train; but when it had passed there was the same rush of air following, which swept the papers along in the path of the train, some of them flying the full length of the cut.

Again, observe the action of a paddle or fan. For example, cover a large table with loose papers and, taking a paddle, say 18 x 24 in., swing it downward with all your might but stopping at an angle of 45 deg. with the table. Observe that little if any effect is produced on the papers. Now, move back far enough to permit the paddle to be swung down to a level with the table and notice that the papers will then be scattered and blown to the floor by the rush of air behind the paddle. The same principle is observed when using a large palm-leaf fan. Little air is felt by swinging the fan toward one's face, until the swing of the fan is such that the rush of air from behind the fan can reach the face.

Why Were the Blades Curved Forward?

Another instance that, to my mind, demonstrates the same principle occurred at the Tompkins Shaft, at Pittston, Pa. During a strike, about 1875, an attempt was made to burn the fine coal and slack under the boilers, instead of washing it into the river as formerly. To that end there was installed a small fan, 4 ft. in diameter and 2 ft. wide, having four straight paddles or blades. The front of the boiler was closed in, the idea being to blow the fine coal and dust into the furnace by means of this fan, which was run at a tip speed of 4,000 ft. per min.

The scheme was not successful until another fan was installed which was of the same size but had eight blades that were curved forward to almost half a circle. I asked the inventor of the fan, J. E. Patterson, Pittston, Pa., what was the purpose of curving the blades forward; but he could only say that the idea was to scoop the air. Mine Inspector Williams, an advocate of centrifugal force, failed to explain how centrifugal force could act in a fan with the blades curved forward in this manner.

Other matters prevented me from going further into the matter, however, until some years after, when the late William David Owens was transferred to Pittston as district superintendent of mines for the Lehigh Valley Coal Co. Having charge of an adjacent colliery at that time, I came into close association with Mr. Owens, whom I knew to be well versed in the sciences and one of the best authorities in this country on mine gases and fan ventilation. The centrifugal principle in its relation to the action of a fan became our pet theme of discussion. We failed, however, to reach a satisfactory explanation of the results obtained in the operation of the Patterson fan just mentioned.

Not being able to support my contention with figures I proceeded to design and build a fan for demonstration. This fan was 30 in. in diameter, 6 in. wide and was provided with a spiral casing, in accordance with the general practice. The fanwheel as then designed is shown in Fig. 1. The blades were 6 x 7 in. and constructed with two different faces, one face being flat and straight, while the other was wedge-shaped. The flat face had a half-inch flange on each side, as appears in the figure. The fanwheel was made reversible so that either of the blade faces could be made the forward face when the wheel was revolved. At an educational lecture on fan ventilation delivered by J. T. Beard, at Wilkes-Barre, Pa., this fan was mentioned in the discussion that followed the lecture.

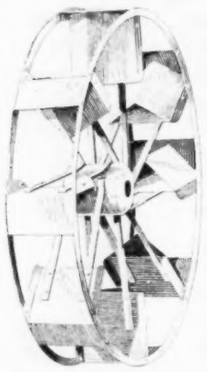


FIG. 1. FANWHEEL FIRST DESIGNED

Reversing the Fan Improved Its Delivery

In response to his expressed desire to see the fan in operation, Mr. Beard and others were invited to meet a few days later at the colliery where this fan was installed. At that time the first test was made with the straight face running forward. The fan was driven by a belt at a speed of 581 r.p.m., the tip speed being 4,563 ft. per min. At this speed the fan delivered 1,285 cu.ft. of air per minute, as measured at the outlet or discharge at the top of the expanding chimney, the measurement being taken with a Gray recording anemometer.

At the suggestion of Mr. Beard the flanges on each side of the blade faces were turned down flat and a second test was made at the same speed as before, with the result that the yield of the fan was slightly less, being 1,174 ft. per min.

A third test was then made by reversing the fan and running the wedge-shaped face of the blade forward. Although the fan was now run at the same speed and under the same conditions as before, to the astonishment of all present, the volume of air delivered was 1,410 cu.ft. per min. Mr. Beard remarked when asked for an explanation, "It would seem that you can build a fan in any old shape and get results." Having himself designed a fan that has given good results, I felt that I had at least developed a point worthy of discussion.

Dust Congregates Behind Fan Blades

We were then building at this colliery a new 6-ft. fan to exhaust the dust from the breaker to improve the conditions of work therein. Two small windows were placed on each side of the fan casing, one above and the other below the intake, for the purpose of observation. When the fan was in operation, a quantity of fine dust being thrown in at the intake, it was observed that a thick body of the dust followed close to the back of the blades in passing outward to the spiral casing, while there was little dust in front of the blades. This condition was found to continue all around the fan. It then dawned on me that I must build a fan with the least possible size of blades, giving these a form exactly opposite to that in general use, if I was to prove conclusively that the principle of centrifugal force so generally ascribed to the fan's action was incorrect.

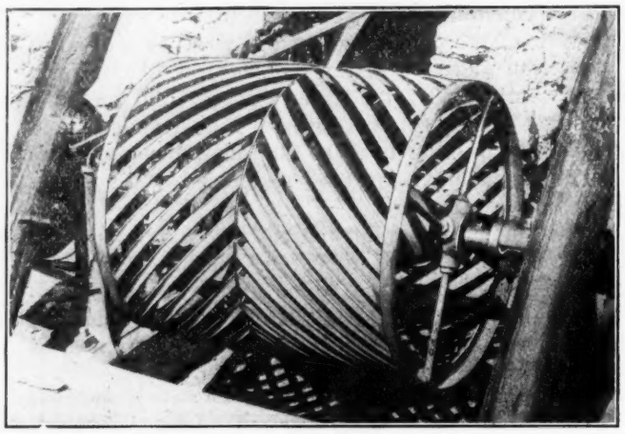


FIG. 2. FANWHEEL HAVING EXTREMELY SHALLOW BLADES DESIGNED TO ELIMINATE THE PRINCIPLE OF CENTRIFUGAL FORCE

With that end in view I then designed the fanwheel shown in Fig. 2, with the blades arranged in the herringbone style. The fanwheel was 30 in. in diameter and 30 in. wide. There were thirty blades on each side of the fan, the diagonal length of each blade being 40 in., while the width or depth of the blades, radially, was only 1½ in. The front face of each blade formed a half circle terminating in a back shield.

When completed this fan was tested by three of the leading officials of the Lehigh Valley Coal Co. The test was made with the fan drawing and discharging its air in the open atmosphere. The wheel was belt-driven and ran at a speed of 630 r.p.m. The results obtained were remarkable, the volume of air delivered being 25,389 cu.ft. per min., which was considerably more than three times the fan's cubic contents, per revolution—far exceeding all expectations.

Although getting good results and proving conclusively that centrifugal force was not the real factor in the yield of a fan, for practical reasons the herringbone construction was abandoned and a third fan was

designed and built as shown in Fig. 3, straight blades being substituted for the diagonal blades previously employed. The figure shows a 4-ft. fan with forty-eight 3-in. blades, each blade being shaped as shown in the small detailed cut at the left in the same figure.

The test of this third type was made on a fan somewhat smaller than the one shown in Fig. 3, the fan tested being 30 in. in diameter and 30 in. wide, with 1½-in. blades, which gave two intake openings each 27 in. in diameter. As shown in the figure, the front face of each blade was the arc of a circle or cup-shaped. The blades were made as small as possible, and this shape prevents any possible suggestion of centrifugal force entering into its action. At the back of each blade is a shield, shaped so as to allow the air to follow closely the vacuum formed behind the blades and to reduce the distance at the circumference between the shield and the next blade, so that the total area of discharge at the circumference is about 10 per cent more than the combined area of the two intake openings. The purpose of this is to prevent any back-current entering the fan from the spiral casing which would hinder the fan's action.

In the severe test to which this fan was subjected by Division Superintendent Owens, of the Lehigh Valley Coal Co., the fan was run at a speed of 581 r.p.m., giving a tip speed of 4,563 ft. per min. In measuring the air delivered the outlet was partly closed so as to give a uniform velocity at all points. An average of three tests showed that the fan delivered 29,400 cu.ft. per min., which was over four-and-one-half times its volume per revolution.

In the second test the two intake openings of the fan were boarded up as tightly as possible and the fan was run at the same speed as before. A water gage placed near the axis of the fan showed a constant depression of 1.3 in. In describing a test made on a Jeffrey fan, Mr. Owens referred to this fan in *Coal Age*, Vol. 13, page 1,188, by saying, "D. W. Evans, of Pittston, Pa., has constructed a fan with numerous blades, their depth being only 5 per cent of the diameter of the fan. These blades are attached to a rim and a central plate at an angle of about 30 deg. This fan also produces about four times its own cubical contents per revolution.

In closing let me say that this fan and the well-known Sirocco fan, which appeared on the market about the time I designed the last mentioned ventilator, proved my contention that centrifugal force is not a factor in fan operation. The shallow 1½-half inch blades used on the fan tested were employed for the sole purpose of eliminating the influence of centrifugal action. It is my belief that a fan with 3-inch blades would produce five or six times its volume, per revolution, in the air delivered.

Reasoning from the principle of centrifugal force, it appears to me that a fan cannot produce more than its cubic contents, per revolution, while the tests referred to proved they do produce from four to seven times their cubic contents per revolution. The best results recorded from tests made on the general large mine fans of the Cymbal type are from 75 to 90 per cent of their cubic contents, per revolution.

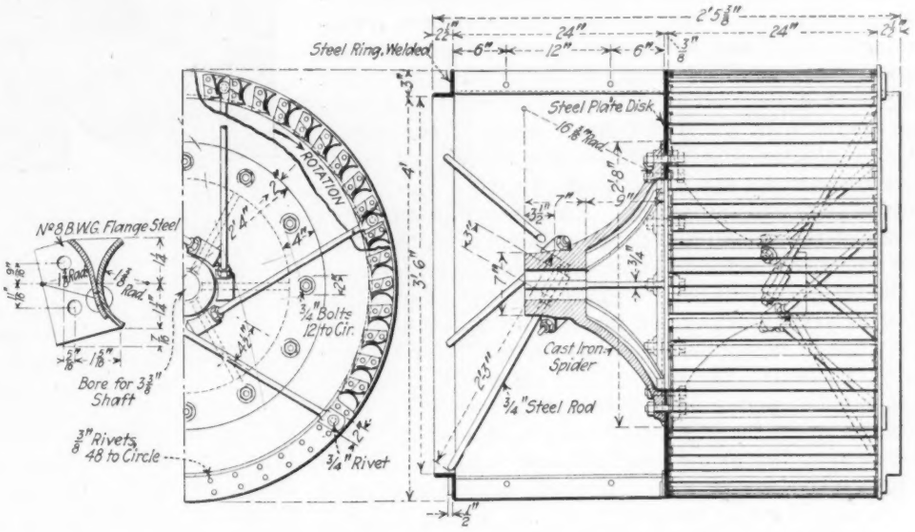
whether exhausting air from or forcing air into a mine,

My conclusion is, therefore, that all fans give their results by producing a partial vacuum back of the blades, and the better type of fan is that which protects this vacuum so that only air from the intake of the fan can reach it. Of course, it is well understood that there is no difference in the fan's action in this respect, whether exhausting air from or forcing air into a mine, the only difference being in the connection of the intake opening of the fan with the fan drift leading to the mine. If this contention is correct, it would be interesting to know what change would have to be made in the formulas giving the pressure and yield of a fan. Also, can a mine fan be called a centrifugal fan?

In preparing this article for publication I have recounted the mechanical tests made, and my observation of facts appears to me to illustrate the true principle of action of mine fans. Not being a graduate of a scientific school or university, my technical knowledge has been gained through a correspondence course of instruction, at a time when I had to work seven or eight shifts of ten hours each, every week. This continued for several years while I was employed in the Wm. A. Connell Colliery, Duryea, Pa. Supplementing this instruction, however, is a practical experience of sixty-seven years in the mines. When a boy of eight years it was always my disposition to ask the *why and wherefore* of everything I saw, which has made me a student of mechanical and natural laws. My arguments and conclusions must therefore be judged from that standpoint.

Type of Fanwheel Finally Adopted

This fan under a severe test delivered a volume of air more than four-and-one-half times its own volume per revolution. On the right of the figure, one-half of the blades are cut away to show the construction.



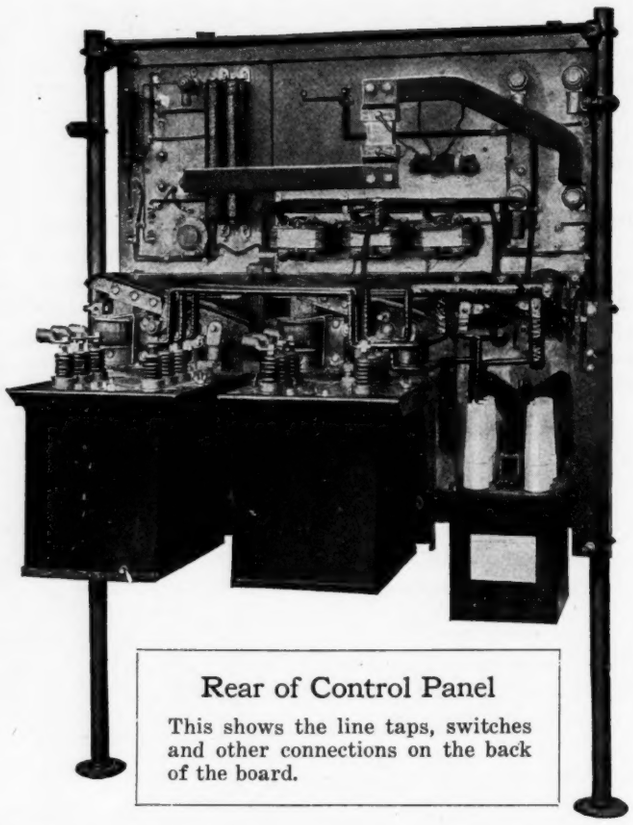
Automatic Starter for Motors Used For Driving Mine Fans

Series and Dash-Pot Relays Assure the Engineer That Speed Will Be Attained Without Excessive Peak Loads

THE control panel shown in the illustration has been developed by the Cutler-Hammer Manufacturing Co., of Milwaukee, Wis., for the automatic starting of polyphase squirrel-cage induction motors driving loads possessing great inertia, such as mine fans, and which therefore require several minutes to come up to speed. This controller is essentially an automatic starter of the auto-transformer type and consists of three double-pole magnetic contactors, two auto-transformers, a current-limit relay and a time-limit relay, together with the necessary auxiliary magnetic switches. The switch equipment is mounted on slate panels carried on a floor-type frame, with the transformers mounted separately.

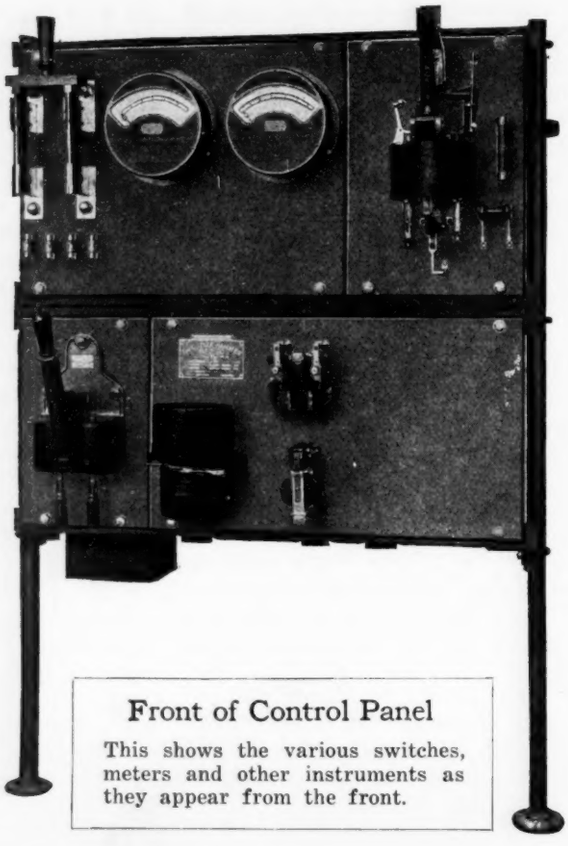
One contactor acts as a main-line switch, while the other two connect the motor to the starting taps of the transformers and to the line. The interval between the closing of the second and third contactors, which is the time given the motor to come up to speed, is governed by the series current relay and the dash-pot relay, either being externally adjustable for current or time values.

The use of both relays is made necessary for the following reasons: Time relays are generally unreliable when set to operate at a longer interval than ten or fifteen seconds, therefore they cannot be used by themselves under the above conditions of starting. Series current relays are reliable over a wide range of current values, but if set to release at the low values obtained when starting under normal conditions they usually will fail to function, if the load be increased even slightly or the line voltage fall below normal. On the other hand, if set for higher values the series relay will connect the motor to the line before it has reached speed under normal conditions of load and line pressure, thus drawing undesirable peak currents from the line. By combining both types of these devices the current relay is made to function first, it being set for a current value sufficiently high so that its operation will be assured under practically all conditions of load and line voltage, while the dash-pot relay gives the proper time interval after the former has functioned.



Rear of Control Panel

This shows the line taps, switches and other connections on the back of the board.



Front of Control Panel

This shows the various switches, meters and other instruments as they appear from the front.

Control of this automatic starter may be by push button stations, snap switches, or other contact-making devices, from any remote point. Low-voltage protection is provided with 3-wire control by push buttons, and low-voltage release with 2-wire control. The adjustable feature of both relays makes this starter applicable to almost all operating conditions, regardless of the variation of the line potential and the load.

Strike Still in Progress in Northern West Virginia

STATE police are patrolling certain districts in Northern West Virginia, where a strike has been in progress since the middle of July directed against the mines of certain companies who have refused to accede to demands for a closed shop. A clash occurred between strike pickets and others at Dellslow on the night of Aug. 11 as a result of which state police are patrolling between Dellslow and Masontown. Men being brought in to replace striking miners at Dellslow the latter part of the second week of August were put to work at Bretz instead. While some houses are vacant at several of the operations along the line of the Morgantown & Kingwood Ry. because of the strike, these are being filled rather rapidly by incoming miners.

Coal Is Assembled by Motor Truck And Shipped by Railroad

Farmers Mine Coal and Haul It to a Central Dump, from Which It Is Loaded into Railroad Cars by Steam Shovel

By Donald J. Baker
Wilkinsburg, Pa.

ONE of the most novel coal-mining projects in western Pennsylvania is located about fourteen miles east of Pittsburgh beside the William Penn Highway and near the town of Bessemer. The operation is in reality a country-bank clearing station.

This portion of Allegheny County is primarily a farming country, but the Upper Freeport coal bed is easily accessible, and most of the farmers have opened small country banks on their properties. Of course, no railroad ever ran a spur to these mines. The coal produced heretofore has been sold exclusively for domestic use. As this demand was irregular, the mines were worked only intermittently. Now all the country banks within six miles of Bessemer are working regularly.

Nearly a year ago one of the officials of an organization known as the Central Supply Co. conceived the idea of buying the output of each bank and gathering it at a central point for shipment. This was rather a novel idea and not a bad one from a financial point of view. After the coal had been collected it could be placed in railroad cars by steam shovel and shipped.

A spot was chosen in a field where it was believed that 75,000 tons of coal could be stored if need be and in a location that is central with respect to the outlying banks. It also is easily accessible to motor trucks on the one hand and railroad cars on the other.

The output of the small mines is purchased by the Central Supply Co. as soon as it is delivered at the storage pile. Thus it is left to the farmer to decide how he can best and most cheaply get his product to the place where he can sell it. That he should choose the truck as the transporting medium was to be expected, for the roads in this district are good and the mines are for the most part within easy reach of the roads.

About thirty mines are having their product delivered to this storage pile near Bessemer; each is utilizing at least one truck. These trucks are of every make and design and vary from a known capacity of two tons up to an unknown capacity that must approach eight tons, as sideboards are used on the boxes. The coal is weighed at the storage pile before dumping. Each truck has a known tare and it is not necessary to weigh it separately at each trip.

As can be imagined, there is a steady stream of trucks moving to and from the storage pile. About six hundred tons are delivered daily, which gives each mine an average production of about twenty tons a day.

The two most interesting features of this unique operation are the original idea that made such an enterprise possible and the fact that trucks are being used to transport the coal. In this case the trucks are not supplanting the railroad cars, but they nevertheless are performing a difficult task in an efficient manner. While most of the farmers own their own trucks, some are rented by the day from owners in the Pittsburg suburban area.

Much has been said against the "country bank," because it holds railroad cars unnecessarily long on sidings. That cannot be charged against the small mines delivering coal at Bessemer. The cars should not be, and probably are not, kept any longer than the cars at the average tipple-equipped mine.

Country Bank Clearing Station

A steady procession of trucks from two-ton capacity to over eight tons moves to the Bessemer storage pile from "coal banks" on the surrounding farms.

Storage Pile Near Bessemer, Pa.

At this pile about 600 tons are received daily and loaded by steam shovel into railroad cars. About 75,000 tons of coal could be stored on the plot.

Discrediting the Consulting Economist in Wage Controversies—I

Theories and Statistical Compilations of the Wily Mr. Lauck Nullified by False Deductions and Manipulation in the Effort to Bring About Prearranged Results—Records Culled to Prove Contentions

ONE of the most salutary results of the investigations of the President's Anthracite Commission was the discrediting of the so-called "consulting economist," as represented in the person of W. Jett Lauck, who served in that capacity for the United Mine Workers of America in the presentation of their case and arguments before the commission. Lauck had appeared in a similar capacity in other labor controversies, notably in the arbitration of the street-railway strike in Boston, in the matter of the railway brotherhoods before the Railway Labor Board, and in the interest of the bituminous coal miners before the Bituminous Coal Commission. In these hearings, as in the case before the Anthracite Commission, he presented a large amount of printed matter in support of his theory that wage adjustments should be based primarily upon family budgets and what he is pleased to call a "living wage."

Operator's Statisticians Figure Too

It does not appear that the tribunals before which these cases were heard or the opposing parties in the controversies undertook to question the soundness of Lauck's theories or the statistical compilations which he submitted in support of them. It was left to the members of the committee of anthracite operators who opposed Mr. Lauck before the Anthracite Commission and who themselves are no tyros in the realm of statistics and economics to meet and set at naught the entire case which, at great expense to the miners, he had prepared for them.

In making his carefully-prepared attack Mr. Lauck has all the confidence and assurance of one who feels he has his adversary completely at his mercy, but when all of the permissible exhibits had been presented and they had been subjected to the critical analysis of the operators' representatives, and Mr. Lauck himself had been subjected to the fire of cross-examination conducted by S. D. Warriner, his assurance began to give way. It must be admitted that Mr. Lauck did not capitulate willingly or all at once. He is clever, if cleverness consists in shifty and indirect answers to direct questions, but in the end the main exhibits on which the miners' case had been largely built up were by Mr. Lauck's own admissions thoroughly discredited. The "consulting economist," who had received thousands of dollars' worth of free advertising in the daily papers, thanks to a highly organized and efficient publicity department maintained by the Bureau of Applied Economics, was shown to be not an economist at all but a mere juggler of figures who, given the desired answer, would manipulate the figures to get the result.

One of the elaborately prepared statements submitted as Exhibit No. 3 attempted to show that employment in the anthracite mines was more irregular than in the bituminous field, though in order to arrive at this conclusion it was necessary to carry the statistics of labor employment in the anthracite mines back to 1881, a period of forty years, whereas comparison with bituminous mines could be made for only thirty years. Moreover, even then comparison was made with the bituminous mines of Pennsylvania only, not with those of the United States as a whole, and particularly not with the Central Competitive Field, which has suffered more than any other part of the country from irregularity of employment and from enforced idleness.

Made Carefully-Selected Comparisons

It was plainly evident to a man "with half an eye" that statistics of employment in the Pennsylvania bituminous mines were taken for comparison because, owing to the markets in the Northwest, in Canada, in New England, and at the Atlantic seaboard, coupled with the greater number of local outlets for the product in the iron and steel mills of Pittsburgh and Johnstown and the other industries of the State, steadier employment is obtainable in the bituminous coal mines of Pennsylvania than in other sections of the country, and particularly in the Central Competitive Field, which was the storm center in the latter part of 1919. The house of cards built by Mr. Lauck on the foundation of the bituminous mines of Pennsylvania alone, however, crumbled before the evidence submitted by the operators, which showed that for the last twenty years there had been a steady improvement in the regularity of operation and in the opportunity for employment in the anthracite mines and and that the anthracite workers had now, and would continue to have, advantage not only over the Central Competitive Field and the United States as a whole but over the Pennsylvania bituminous field, which Lauck had selected as his base of comparison. The reasons assigned by Mr. Lauck for using the Pennsylvania bituminous fields for the purpose of comparison were so palpably insincere that the members of the commission might have been justified in resenting it as a reflection upon their intelligence.

Exhibit No. 4 Revealed as a Double Deal

Another of the "fakes" which Mr. Lauck attempted to perpetrate on the commission was contained in a pamphlet introduced as Exhibit No. 4, which purported to show that wage earners in the anthracite region were more poorly paid than their fellow workers in the bituminous mines. In the preparation of the evidence in support of this contention, however, Mr. Lauck, unfortunately for him and for his clients, used two different methods of computation, one for the anthracite mine workers and the other for the bituminous. This was a fatal mistake, for it was readily discovered, and it was shown that had either method been applied alike to both industries it would have revealed that the employees in the anthracite mines were substantially better paid

than were those in the bituminous mines. By employing two different methods of computation in order to obtain the desired results the "consulting economist" figured that the average yearly earnings of the workers in the Pennsylvania bituminous mines in 1919 amounted to $1,337 and that those of the anthracite workers amounted to $1,126, and to accomplish this result he was compelled to consider that the miners put in full working time during the six weeks of November and December when they were out on strike.

Mr. Lauck's Weirdest Abracadabra

Had he used the same method in computing the bituminous earnings as he used in computing the anthracite earnings the results would have shown $980 as the average for the bituminous miners, instead of $1,337, the faked result, giving an advantage of $357, or 36 per cent. Had the same method been applied in computing the anthracite earnings as was applied to bituminous it would have been shown that the anthracite mine workers averaged $1,501 instead of $1,126. The actual average earnings of anthracite-mine workers, as shown by the certified statements taken from the payrolls, were $1,509.

Probably the most flagrant attempt at deception in the way of statistical presentation, however, was that contained in a pamphlet submitted as Exhibit No. 12, which purported to demonstrate that since 1915 the earnings of the anthracite-mine workers had progressively decreased as compared with the cost of living, and that they were worse off in 1919 and at the present time than they were in 1914. In the introduction to Exhibit No. 3, which has already been discussed, Mr. Lauck asserted the axiomatic truth that "in the coal mining industry the degree of regularity of operation is today as important a factor as is the level of hourly rates. . . . The health of the family depends upon annual earnings, which are the product of the hourly rate by the number of hours of actual employment." As practically all of the coal, either anthracite or bituminous, produced in the United States is mined on the contract basis, Mr. Lauck might preferably have used the term "unit rates" instead of "hourly rates"; but the same principle applies.

Uncertain Memory Adds Complications

Mr. Lauck, however, evidently forgot in preparing his Exhibit No. 12 that he had subscribed to this principle in another exhibit, for in making his computations of earnings to compare with the increasing cost of living he limited his calculations to a consideration only of the unit rate, and omitted entirely the equally "important factor in earnings," regularity of employment. The main interest in the exhibit centered on a chart which purported to show that with 1914 as the basis equalling 100, the index number of the cost of living in 1919 was approximately 190 while that of the contract miner's earnings based on the rate alone was a little less than 150. The falsity of this presentation was promptly and effectively exposed by the other side, in superposing upon the same chart the actual earnings not only of the contract miners but of all anthracite-mine workers. This addition to the chart showed that the highest index number for the cost of living in 1918 was 170, while the earnings of the contract miners was 193 and that of all employees was 220, while in 1919, with the index number of cost of living at 189, that of contract miners was 211 and all employees 234. (See *Coal Age*, Aug. 12, page 354.)

Half truths are ever more to be condemned than direct misstatement, and yet Mr. Lauck in the preparation of this exhibit reproduced from a Government report a table showing the increases of rates in the anthracite region for a series of years but omitted to reproduce a companion table giving similar information in regard to the bituminous region. It is true that in this exhibit Mr. Lauck was discussing anthracite earnings as compared with the cost of living, not with earnings in the bituminous fields, but it is worthy of note that when he was making comparisons between anthracite and bituminous earnings in other exhibits this table managed to escape his notice. Had it been used the whole fabric of his structure of comparisons of earnings in the two industries would have fallen to the ground. In fact every exhibit prepared and submitted by Mr. Lauck on behalf of the mine workers which purported to show the earnings of the anthracite mine workers, whether by unit, by the week, by the month, or by the year, whether in comparison with the earnings of bituminous coal miners, of wage earners in other industries, or in comparison with the cost of living, was shown conclusively to have been predicated on false premises, calculated by faulty methods and to have produced incorrect and contradictory results.

Did His Best Lacking a Basis of Fact

Although Mr. Lauck had confidently asserted, in the presentation of his exhibits, that they were the results of careful studies and that the deductions to be drawn from them were trustworthy, he subsequently admitted that the statistics were fragmentary, the best that the Bureau of Applied Economics should obtain with the funds and facilitates at its command, that the exhibits were neither statistically nor mathematically correct, and that the earnings computed were purely hypothetical. He admitted, further, that such figures as were presented were only supposed to be indicative and that the operators had the real facts. The most damaging admission the "consulting economist" was compelled to make, however, was that the title to one pamphlet, introduced as Exhibit No. 5, was not intended to indicate the contents. "That is simply a title," said Mr. Lauck when confronted with the accusation that the tables and text did not show what the title called for, namely "Average Full-Time Weekly Earnings in the Anthracite-Coal Mines of Pennsylvania." At another time, in order to justify himself for using a certain disputed factor in making determinations as to anthracite earnings in 1919, he asserted that the source of his information was confidential. This statement was nothing less than a deliberate perversion of fact. There was nothing confidential about the authority for the figures, and Mr. Lauck knew it, for the official correspondence correcting the error in the disputed factor had been submitted to him. As the correction, however, vitiated practically every statistical exhibit the "consulting economist" had presented, it seemed necessary for him to hide behind this somewhat questionable defence.

Finally, when by cross-examination of Mr. Lauck and through the replies to his exhibits which the operators submitted the unreliability of his entire presentation had been conclusively demonstrated, he asserted that he really placed no confidence in the figures themselves, but what he and the miners' representatives wanted was a minimum wage of $6 a day for common labor and that present differentials for positions requiring greater skill and experience be maintained. The fact that such a

wage schedule would add not less than $2.40 a ton to the cost of producing the domestic sizes of anthracite, and that over $100,000,000 would be added to the payrolls did not ruffle the smug composure of Mr. Lauck. Nor was he the least discomfited by the fact that employees of the Federal Government had appealed to Congress asking that $3 a day be established as the minimum wage.

Six dollars a day was the least that the common laborer in the anthracite region could possibly live on. That was evidently the amount he had been retained to secure, and he was not going to ask, for conscience sake, any questions as to the methods employed in obtaining the result. It is worthy of note that the only exception taken to the operators' exhibits controverting Mr. Lauck's statements was that their compilations of earnings by the anthracite-mine workers should be verified through examination of the books by the commission's properly designated accountants, a demand that was at once acceded to by the operators. The cross-examination by Mr. Lauck of Mr. Warriner, who presented the operators' case, was limited to the operators' formal reply to the opening statement of the miners. This was confined entirely to a brief history of the case leading up to the appointment of the commission and the operators' responses to the eighteen original demands. No attempt was made to discredit any of the other exhibits presented on behalf of the operators, and Mr. Lauck did not even attempt to answer them in the closing argument which he prepared for Mr. Murray to read. The "consulting economist" as an advocate of the living wage and as a distributor of misinformation will be considered in another article.

Movement of Coal and Coke by Fourteen Leading Railroads During April 1919 and 1920

Classes and Railroads	Originating on Line 1919	Originating on Line 1920	Received from Connections 1919	Received from Connections 1920	Total 1919	Total 1920
For Revenue Only						
Anthracite	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons
Baltimore & Ohio	.....	.....	136,113	147,366	136,113	147,366
Buffalo, Rochester & Pittsburgh	.....	.....	11,309	18,092	11,309	18,092
Buffalo & Susquehanna	.....	.....	90	133	90	133
Chesapeake & Ohio	197	1,802	1,905	130	2,102	1,932
Erie	600,352	387,240	183,632	143,922	783,684	531,162
Pittsburg, Shawmut & Northern	.....	.....	1,733	964	1,733	964
Virginian	19	3	.....	50	19	53
Western Maryland	.....	.....	26,764	21,405	26,764	21,405
Totals	600,868	389,045	360,946	332,032	961,814	721,137
Bituminous						
Baltimore & Ohio	2,193,946	2,546,690	581,307	991,905	2,775,253	3,538,595
Buffalo, Rochester & Pittsburgh	293,753	760,358	19,983	26,045	313,736	786,403
Buffalo & Susquehanna	83,525	156,598	332	.....	83,857	156,598
Chesapeake & Ohio	1,585,039	1,967,823	156,784	181,585	1,742,823	2,149,408
Erie	20,998	29,664	458,558	711,238	479,556	740,902
Huntingdon & Broad Top Mountain	48,584	59,201	290	15,509	48,874	74,710
New York Central (Buffalo and East)	466,466	811,214	.....	.....	466,466	811,214
Norfolk & Western	1,575,965	1,295,631	186,120	202,809	1,762,085	1,498,440
Pittsburgh & Lake Erie	425,561	155,822	457,911	224,565	884,472	380,087
Pittsburg & Shawmut	138,428	194,584	.....	.....	138,428	194,584
Pittsburg, Shawmut & Northern	27,718	58,131	26,274	13,442	53,992	71,573
Virginian	255,748	507,457	21,983	51,507	281,731	558,964
Western Maryland	225,918	404,050	449,747	420,896	674,765	824,946
Totals	7,343,749	8,947,223	2,362,289	2,839,201	9,708,038	11,786,424
For Company Fuel						
Anthracite						
Baltimore & Ohio	.....	.....	171	355	171	355
Buffalo, Rochester & Pittsburgh	.....	.....	.....	238	.....	238
Erie	15,069	10,749	.....	305	15,069	11,054
Totals	15,069	10,749	171	898	15,240	11,647
Bituminous						
Baltimore & Ohio	430,689	277,458	23,227	2,353	453,916	279,811
Buffalo, Rochester & Pittsburgh	40,980	55,878	.....	57	40,980	55,935
Buffalo & Susquehanna	2,426	8,442	.....	.....	2,426	8,442
Chesapeake & Ohio	140,357	187,086	.....	.....	140,357	187,086
Erie	127,829	113,980	91,800	167,543	219,629	281,523
Huntingdon & Broad Top Mountain	1,286	2,125	.....	.....	1,286	2,125
New York Central (Buffalo and east)	138,071	138,805	.....	.....	138,071	138,805
Norfolk & Western	153,934	205,055	35,625	48,855	199,559	253,910
Pittsburgh & Lake Erie	19,940	7,980	25,059	12,030	44,999	20,010
Pittsburg & Shawmut	2,569	3,325	.....	.....	2,569	3,325
Pittsburg, Shawmut & Northern	3,656	4,806	.....	.....	3,656	4,806
Virginian	20,144	38,115	99	491	20,243	38,606
Western Maryland	33,651	46,389	4,088	5,073	37,739	51,462
Totals	1,125,532	1,090,445	179,898	236,402	1,305,430	1,326,847
Coke for Revenue and Fuel						
Baltimore & Ohio	71,165	114,896	44,597	71,272	115,762	186,168
Buffalo, Rochester & Pittsburgh	13,177	17,920	11,923	25,227	30,100	43,147
Buffalo & Susquehanna	23,431	22,832	.....	.....	23,431	22,832
Chesapeake & Ohio	30,689	49,278	616	6,866	31,305	56,144
Erie	4,173	8,153	15,577	35,370	19,750	43,523
Huntingdon & Broad Top Mountain	7,797	5,340	.....	1,672	7,797	7,012
Norfolk & Western	80,793	94,918	2,886	12,125	83,679	107,043
Pittsburgh & Lake Erie	24,165	9,396	334,935	151,579	359,101	160,975
Western Maryland	3,416	4,819	29,574	10,352	32,990	15,171
Toals	263,807	327,552	440,108	314,463	703,915	642,015

NOTE—No report was received from the Pennsylvania R.R.

Discussion by Readers

Edited by
James T. Beard

Get Acquainted with Your Men If You Would Succeed

SUCCESS is the ultimate desire of every boss; but few accomplish what they set out to attain owing to a wrong conception of what is essential to success in the management of men. I was impressed with the idea suggested in the letter of C. W. Atkins, *Coal Age*, July 15, p. 135, that mutual confidence is the key to successful operation.

In the past the spirit and attitude of the boss toward the workmen in his charge have been, in the majority of cases, an indifference that not infrequently developed in him an antagonism, as though there was nothing in common between them. The changes taking place in society have been so rapid in recent years that one feels that the average foreman or superintendent has not been able to keep up with the procession.

Formerly the boss in a mine was the whole thing. Regardless of his personality, he was respected and obeyed by reason of his position and authority. It is not so today. Unless a boss is a person of some character, he fails to command the respect of the men in his charge and has little influence over them, beyond the authority that attaches to his office.

Genial Personality of a Manager Wins Favor on Every Hand

An instance comes to my mind, in this connection, regarding the powerful influence of a young man who was appointed manager of a large colliery. His coming into the district was the cause of a change in the spirit of the entire region. He was a likeable fellow, his personality shone in his face and spoke in his every act, so that men were drawn towards him as particles of iron are attracted to a magnet.

When this man came to take charge he brought no one with him but his family; he had no cousins, uncles or brothers-in-law; and no changes were made in the working force by reason of his coming. Indeed, many were not aware that a new man had taken charge of the operations at the mine.

His spirit spread to the neighboring mines. He boosted the operators and was welcomed by them when he visited their places to learn their methods and exchange experiences. It was not long before there was a complete understanding throughout the district regarding scales and the general procedure of business.

At his own mines, this new manager came to know every man above and below ground. He called them familiarly by name and showed a particular willingness to listen to any grievances they might have, whether real or imagined. This was quite a change from the conditions that had existed under the previous manager, who knew most of the men by their number only, just as a convict is known.

It will cause no surprise that this frank habit of "getting acquainted" with his men quickly developed a responsive feeling among them for the new manager. it became the desire of everyone to deal fairly and justly with the company. There was hardly a man that would not rather leave the operation than be guilty of an underhand trick on the manager.

To express it in a few words, the drawing card in this man's personality was his easy manner of getting acquainted with his men. Everyone stood on an equal footing before him. There was no partiality and few thought of him as a manager; but everyone regarded him as a friend. *Getting acquainted* was the key to his success.

G. E. DAUGHERTY.

Pikeville, Ky.

Congeniality Wins

ALTHOUGH my experience has not been similar to that described in the letter of John E. Ambrose, *Coal Age*, July 15, p. 134, I quite agree with him that promotion often goes where it has not been earned. It must be admitted that mistakes are frequently made in selecting the right man for a place. However, we must assume that the intention of the one making the selection is generally to get results, and that is where a person is often misunderstood and his motive criticized.

The most important matter in building up an organization of any kind is to produce harmony throughout the rank and file of the workers. This is, indeed, absolutely necessary if success is to crown the undertaking. The fellow of easy approach, congenial disposition and possessing the knack of getting along with people will generally be selected before a more able and experienced man, but who is differently constituted. In fact, a congenial fellow cannot be kept down; he will rise in spite of obstacles in his path.

Change Wrought in a Foreman

Several instances that furnish good illustrations of this truth come to my mind, but I will cite but one of these. While employed as an assistant boss and working under a very ambitious foreman, who was a real worker, coming early and staying late, I had a good opportunity of studying this particular phase in the promotion of men.

As just stated my friend, the foreman, was a hard worker, but he had the failing that he could not get along with anyone, particularly his superiors in office. He would curl up like an onion peel on a hot griddle whenever things did not turn out to suit him; or when he was given orders different from his own idea of what should be done. At such times he was anything but courteous to his superintendent and the other officials.

In time it happened that the superintendent was promoted to the position of general superintendent and later made manager. A new man was brought into the company and appointed superintendent, which naturally soured my good friend, the foreman, who thought he should have received the appointment as superintendent. However, he soon forgot his troubles and settled down to working as hard as ever.

His meditation undoubtedly gave him a different viewpoint, and it was now noticeable that he was daily becoming more agreeable, though the training caused him effort. By perseverance, which was a feature of his makeup, he became congenial and respectful of the opinions of others.

The sequel to this story is that, in a few years, this man rose to the position of general manager, in another division of the company. The congeniality of disposition that he adopted was the stepping stone by which he emerged from his former self.

It goes without saying that congeniality of disposition will overcome many obstacles in one's path for promotion. While I do not favor the idea of a company going outside of its organization to fill an important position, that cannot always be avoided if results are to be attained. SUPERINTENDENT.

————, Ky.

What Constitutes a Skilled Practical Miner?

FROM the beginning of time, skill has been the only milestone in the recording of man's progress. There has always been a natural division of labor into two classes designated as "skilled" and "unskilled labor." Much has been written and many opinions expressed; but, in the coal-mining industry, the question of what constitutes skilled labor is still an open one that has yet to be clearly defined.

In our study and observation of nature, we often wonder at the universal harmony and perfect interlocking of the infinite variety of its parts, throughout the entire domain of earth and sky. In strong contrast with this harmony is the continual divergence of thought and opinion among men—man being the noblest work of God. Never was this lack of harmony more in evidence than now in the present unrest in the industrial world.

In attempting to answer the question of what constitutes a skilled practical coal miner, our thoughts go back to the days when the miner did not have the aid of modern machinery to assist him in his work. In mining the coal, his success depended on a close study of its nature and texture or hardness. He was familiar with the clevages and cleats or joints of the coal and other characteristics, which enabled him to take the best advantage of these in prosecuting his work.

Improved Methods Have Supplanted the Knowledge and Skill of Miners

A man's knowledge of these conditions and his skill in applying that knowledge then marked him as a practical miner; but, today, the question of what constitutes skill in coal mining is a debatable one. There are thousands of men now employed in our mines whose only practical skill lies in their use of a shovel to load the coal, but who lack the knowledge of the conditions just mentioned that would render their work more skillful. In spite of this fact such men are pronounced by our mining laws to be qualified miners.

It would seem that it is no longer necessary to draw a hard-and-fast line between skilled and unskilled miners. Each year sees the adoption of improved methods of operation, by which the efforts and efficiency of mine workers are handled largely through the office of the mine superintendent; and, today, the success of the operation hinges very largely on the practical experience and judgment displayed in that office.

This is not to say that there are no practical and experienced men still working in the mines, or that any large number of these cannot be classed as skilled miners. It only emphasizes the fact that there is, at present, a prevailing tendency to classify all mine workers on an equal basis. As a result, the man who knows the conditions and can intelligently perform his work has the same rating as the common laborer who hardly knows a piece of coal from a chunk of slate. In this indiscriminate manner all mine workers are classed as coal miners.

Coal Mining Today and Yesterday

The mining of coal today is a vastly different proposition from what it was in former years when men went to work with a conscious need of using their best thoughts and efforts to lighten their toil and increase the result of their labor. Now, the greatest skill of the miner is shown in his ability to protect himself from the increasing dangers of his occupation, while at the same time producing his share of the coal. Judging from the numerous and frequent accidents that occur in our mines, this skill is sadly wanting in a majority of mine workers.

Carelessness has been considered a great source of mine accidents; but we must regard as of equal importance the lack of proper skill on the part of the worker. Without this skill a man is unfit to be employed in the mine, or to work where there is much danger. This might, however, discriminate against a large class of workers who fail to have the same high regard for either their own safety or that of others. It will be interesting to learn the views of many as to what constitutes a skilled practical miner, today.

Staunton, Ill. W. M. CHAMBERS.

Old and Tried Men Get the Best Places

OFTEN it happens that, as suggested in the inquiry that appeared in *Coal Age*, July 29, p. 239, much dissatisfaction is aroused among miners in respect to the places given to them. In other words, a satisfactory distribution of men in a mine is frequently a difficult problem for the mine foreman to solve.

Perhaps my experience will interest some readers. Our proposition concerns the operation of two mines. In one of these the coal is low and hard and the mine is leased on the basis of a yearly minimum royalty. The other mine, which is owned outright by the company, is working a higher and softer coal.

It is my custom, always, to put a new man in the low coal and, should I need more men in the other mine, they are taken from the low coal and put to work in the higher coal. When transferring a man in this manner, however, I insist that he shall finish his place in the low coal first.

Again, I have men who would rather work alone and I give these the choice of doing so in the low coal or working with a butty if they are given a place in the high coal. I have proved that this method helps to hold men who are working the higher coal, as they realize that if they should leave and ever want to come back, it is low coal for them.

Also, I try to keep my best men in good places, but that is not difficult, as a good miner seldom desires to give up a good place. In respect to haulage, which is another item for consideration, I try to bunch my men so as to provide a full trip regularly in each section of

the mine. Of course, this cannot always be done, as it is well known a foreman cannot have everything he wants. If that was the case there would be no growling.

Karthaus, Pa. G. H. LEWIS.

Pass on a Good Idea

AFTER reading the response by "Mac," *Coal Age*, July 22, p. 178, which was drawn out by my previous letter, I may be permitted a further word.

It has always seemed to me that the readers of *Coal Age*, at least a large majority of them, enter into the discussion of these matters that are of interest to all with no desire for what I would term "destructive criticism." On the other hand, their purpose seems to be to gain further information on some special point by drawing out the views of others. Almost invariably, the replies to letters are made with this idea in mind and the discussion becomes a help instead of a hindrance to a brother mining man.

An old and true saying asserts that, Experience gained at the cost of labor and study is valuable. In line with this thought, I would add that the man who has mastered any difficult problem can be a great help to a brother who is up against a similar problem, if he will pass on to others his experience and the knowledge he has gained.

EXCHANGE OF EXPERIENCES AMONG PRACTICAL MEN IS ALWAYS A BENEFIT

There is no question but that the handing around of these experiences is a mutual benefit and is always appreciated by those who are face to face with hard problems. Expense, labor and time are thus saved and progress is made in the prosecution of the work in hand. I trust and believe that it was in this way my previous remarks were regarded by Mac. I fully agree with his idea that there are many instances where good cap-pieces, 12 to 18 in. long are much to be preferred to securing the roof over airways and traveling roads with double timber in the form of booms supported on legs.

In post timbering, particularly at the working face, the best results are always attained when the posts are staggered. That, however, is not practicable on an air-course or traveling road where the posts must be set in line in order to afford a straight passageway free from obstructions of timber. This is particularly desirable should it become necessary to use such passageways, in case of an accident. ANDREW O. BAIN.

McKeesport, Pa.

Indefinite Mining Laws

REFERRING to the argument mentioned in the inquiry regarding the use of open lights on the return air from places generating gas, *Coal Age*, July 15, p. 136, let me say that the section of the Pennsylvania law quoted (Art. 10, Sec. 3) is a typical example of the indefiniteness, not to say meaningless expressions, often found in the laws controlling the mining of coal in different states.

Notwithstanding this aspect of the law and the evident need of revision, it stands to reason that open lights should be prohibited by the fireboss in charge of the section of the mine referred to in this inquiry, where five rooms are described as turned off the return airway on a pair of headings generating considerable gas at the faces of the headings. It is clear that this gas will sweep the working faces of the five rooms where it is liable to be ignited by the open lamps of the men working there.

Let me suggest here that if the circulation was so arranged that this pair of headings would be on the last of the air, or better on a split by themselves, the use of open lights might be permitted in those rooms. But, even then, there would always be the possibility of a serious accident resulting in the rooms and possibly affecting the entire mine.

MINING LAWS THOUGH FAULTY MUST BE OBEYED IF DISCIPLINE IS TO BE MAINTAINED

While it is readily admitted that our mining laws are not perfect but are faulty in many respects, it is our duty to see that they are not violated, as far as this is reasonable and practicable. It is the only way to insure a reduction of accidents in the mines. Where a section of the law appears indefinite or its meaning is uncertain, it is a good plan to appeal to *Coal Age* and its practical readers, as was done in this instance, to get their views and opinions. I agree with the conclusion expressed in the reply to this inquiry that open lights are prohibited in these five rooms, in the meaning of the law.

However, a foreman will use his judgment, at times, and take advantage of the uncertain meaning of a section of the law. It has occurred in my own experience that a pair of headings that were being driven would generate sufficient gas to require the use of a safety lamp when examining the condition at the face, after firing a blast, or on the occasior of a temporary disarrangement of the circulation. Perhaps, the brattice would be broken down or a canvas tucked to one side, which permitted the short-circuiting of the air. Such a condition would not, in my judgment, require the continuous use of safety lamps, but a good foreman will take every precaution to avoid accident.

PRACTICE OF BLASTING WITH BLACK POWDER STILL PREVAILS IN THE ANTHRACITE MINES

When working the bottom Dunmore vein in what is now called the "new shaft" at Olyphant, Pa., it may seem strange to say that, while everyone was given a safety lamp, most of the blasting was done with black powder and squibs. The pratice is not yet prohibited by the Anthracite Mine Law. Every miner knows that a flash of fire always follows an explosion of black powder, and I want to ask what is the difference between permitting such a practice of blasting coal in a gaseous mine and the use of open lights in a current charged with gas.

Many of the mining laws of the different states were enacted several years ago and since that time great progress has been made in introducing into the mines improved methods and modern equipment. Yet, our mining laws, as in the beginning, are now and, shall we say, ever shall be. Can we not make an effort toward their improvement. Some of the amendments that have been made recall the story told of the village school teacher who wrote: "The cat was seen to run" instead of "The black cat was seen to run." When her attention was called to this omission, she explained that the color of the cat was not of importance but the fact that she was seen to *run*. Let us strive for amendments that amend when revising our laws to increase safety in the mine.

Plains, Pa. RICHARD BOWEN.

Inquiries of General Interest

Answered by

James T. Beard

Theoretical Head of Air Due to Fan

REFERRING to the inquiry in regard to the pressure resulting from the action of a centrifugal fan, *Coal Age*, July 15, p. 136, I am interested to know what is the correct expression for the head-of-air column due to a fan having a tip speed (u), measured in feet per second.

In the reply given to the inquiry, there appears the usual formula $h = u^2/g$, which means that the head-of-air column due to the fan is twice the theoretical head due to the velocity of the blade tips. Though it is stated in the text that this head is "one-half the head due to the velocity of the blade tips of the fan," that is evidently a misstatement.

While the theoretical head due to a fan, as first given by Murgue, corresponds to that given in *Coal Age*, I observe that the B. F. Sturtevant Co., in their book entitled "Mechanical Draft," p. 201, use the value for the theoretical head due to the velocity of the air, which is one-half that given by Murgue and commonly used. It would be interesting to know which of these values is correct.

L. G. JENKINS.

Jeddo, Pa.

The velocity of air, water, or any fluid medium, produced by a given head of the same medium, is determined by the well known formula $v = \sqrt{2\ g\ h}$, which gives by transposition the expression for the head corresponding to a given velocity, $h = v^2/2g$, the head being expressed in feet and the velocity and force of gravity in feet per second. The flow in this case is opposed by no resistance.

But, since action and reaction are equal, it is evident that a flow taking place against a resistance will develop twice the pressure; or, more correctly speaking, will require twice the head to produce the same velocity, which is the condition pertaining to the action of a fan.

The Sturtevant authority states, page 200, "If . . . the fan be allowed to discharge the air through a short and properly shaped outlet, the pressure necessarily will, with an efficient fan, be substantially that required to produce the velocity," This, however, does not represent the condition in fan practice where the flow of the air is opposed by the resistance of the mine. The mine resistance increases the pressure and the pressure head an amount that approaches twice the head due to the velocity of the flowing air. The greater the efficiency of the fan, the nearer this head approaches *twice* that due to the velocity.

Bearing these facts in mind, it is clear that the expression of Murgue is the true base for estimating the efficiency of the fan in practice, expressing as it does the flow against a resistance. For example, in general mining practice, a fan having a tip speed of 6,000 ft. per min. (100 ft. per sec.) when circulating air against a properly proportioned potential will develop a 3¾-in. water gage in the fan drift. The theoretical water gage due to this tip speed, assuming the density of the air is 0.0766 lb. per cu.ft., is calculated thus:

$$w.\ g. = \frac{w}{5.2}\left(\frac{v^2}{g}\right) = \frac{0.0766}{5.2}\left(\frac{100^2}{32.16}\right) = 4.58\ in.$$

The efficiency of this fan is, therefore, (3.75/4.58) 100 = 82 per cent, nearly. It is clear that had the efficiency been based on the theoretical head due to the velocity of the air, the result would be twice this amount or, say 162 per cent, which would be absurd. Therefore, the theoretical head due to the action of the fan is *twice* that due to the velocity of its blade tips.

Weights and Measures of Ohio Coal

WILL *Coal Age* kindly give me some information on the following questions pertaining to the cubical contents of Ohio coal before and after it is mined:

1. What is the average weight or specific gravity of Ohio coal in No. 6 and No. 8 seams? 2. What is the legal weight of a bushel of coal in Ohio; and how many bushels in a short ton (2,000 lb.)? 3. What is a fair estimate of the cubic contents of loose coal broken to any size? 4. How many short tons of this coal will fill a bin 12 x 12 x 15 ft.? 5. What is the estimated tonnage of coal underlying an acre, for each inch or foot in the thickness of the seam? 6. How many cubic inches in the standard bushel used in measuring coal? I shall much apreciate reliable information on these points.

Steubenville, Ohio. Sales Manager.

In reply to the foregoing questions, we offer the following:

1. The average specific gravity of Ohio coal, No. 6 and No. 8 seams, may be taken with close approximation as 1.3, which makes the weight of one cubic foot of this coal in place 62.5 × 1.3 = 81.5 lb.

2. The legal weight of a bushel of coal in Ohio is 80 lb., which gives 2,000 ÷ 80 = 25 bushels per short ton.

3. A fair estimation of the cubic contents of loose coal, mine run, is to allow 40 cu.ft. per short ton, for bituminous coal; or 40 cu.ft. per long ton (2,240 lb.) for anthracite coal. The size to which the coal is broken slightly modifies this estimate, the smaller sizes being somewhat heavier than the larger sizes. For example, broken coal that passes over a 3-in. screen and through 6-in. bars, will average 41.5 cu.ft. per ton; while chestnut grade, passing over a ¾-in. mesh and through a 1¾-in mesh, will average 39 cu.ft. per ton.

4. The cubic contents of a 12 x 12 x 15-ft. bin is 2,160 cu.ft. This bin would hold, approximately, 2,160 ÷ 40 = 54 tons of mine run coal; or, say 52 tons of broken coal; or 55⅜ tons of chestnut grade.

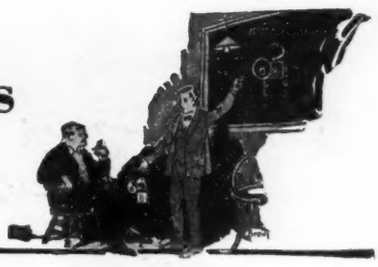
5. The Ohio coal should average 1,800 short tons per foot-acre; or 150 tons, per inch-acre; there being 43,560 sq.ft. in an acre. This estimate assumes a fairly level seam. For an inclined seam, divide these estimated amounts by the cosine of the angle of inclination of the seam.

6. The capacity of a standard bushel, in the United States, is 2,150.4 cu.in., which is known as the "Winchester bushel."

Examination Questions

Answered by

James T. Beard



Mine Foremen's Examination Held at Pittsburg, Kan., July 17, 1920

(Selected Questions)

Ques.—What is the purpose of stoppings and what materials would you use in their construction in mines?

Ans.—The purpose of a stopping, built between the intake and return in a pair of headings, is to conduct the air from the face of the heading and prevent the current from being short-circuited at the breakthrough or crosscut closed by the stopping. Stoppings are also used to seal off abandoned places.

A cheaper form of stopping is made by building a double wall of slate in the opening and filling the space between the two walls with dust or dirt from the road and other refuse. Permanent stoppings should be built of brick laid in cement, or made of concrete. While these are more expensive to build they will generally be found cheaper in the end.

Ques.—We have an air current of 84,615 cu.ft. per min. entering the mine, under a 2-in. water gage. What is the horsepower on the air?

Ans.—The horsepower on the air, in this case, is $(84{,}615 \times 2 \times 5.2) \div 33{,}000 = 26.67$ hp.

Ques.—What kind of haulage would you recommend to replace animal haulage where the mine has been extensively developed and why?

Ans.—The form of mechanical haulage to adopt to replace animal haulage will depend on the equipment of the mine. Where a mine is equipped with compressed air the use of compressed-air locomotives will generally be preferred. On the other hand, if a mine is electrically equipped electric locomotives will mostly be chosen. Locomotive haulage is preferable where the seam is fairly level or the grades are not steep. In an inclined seam or where there are numerous sharp grades, some form of rope haulage will often be better adapted. Engine plane haulage is best adapted to hauling up a steel slope.

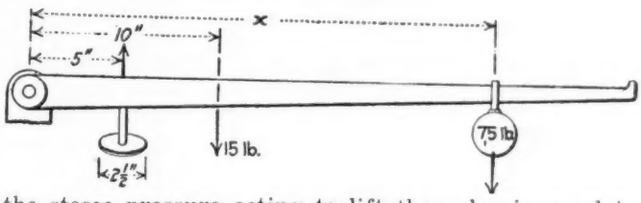
Ques.—State fully how you would proceed if an explosion occurred in a mine of which you had charge and the fan was totally destroyed, and there were men to be rescued.

Ans.—There should always be kept on hand at a mine two or more sets of a good type of breathing apparatus, and a properly trained rescue corps should be available. Without such apparatus it would be highly dangerous to enter the mine after an explosion unless some means of restoring the circulation could be employed. In a shaft mine it may be possible to hang a firebasket in the air shaft provided the mine is not generating gas. No attempt should be made to enter the mine or advance ahead of the air unless breathing apparatus is worn. The rescuers should be in charge of a competent leader who is fully acquainted with the mine.

In the meantime, men should be set to work to repair the damage done to the fan, in a temporary manner, for the purpose of restoring the circulation by that means. Word should be sent to adjoining collieries or districts for aid and physicians should be summoned to be in readiness to give help to any that are succored from the mine or overcome in the attempt at rescue.

Ques.—The distance from the fulcrum of a safety valve to the valve stem is five inches; the diameter of the valve seat is 2½ in. If the weight of the lever is 16 lb. and the distance from the fulcrum to its center of gravity is ten inches, how far should the ball, whose weight is 75 lb., be set from the fulcrum, in order that the valve will blow off at a steam pressure of 90 lb. per sq.in.?

Ans.—Referring to the accompanying figure, showing these several dimensions, and calling the distance from the fulcrum to the center of the ball x, the moment of



the steam pressure acting to lift the valve is equal to the sum of the moments of the weight of the lever and that of the ball, respectively. The sectional area of the valve seat is $0.7854(2\frac{1}{2})^2 = 4.91$ sq.in., nearly. At the moment when the valve should blow off, the boiler pressure being then 90 lb. per sq.in., the total pressure on the valve is $90 \times 4.91 =$ say 442 lb., and the moment of this pressure is $442 \times 5 = 2{,}210$ in.-lb. The moment of the weight of the lever is $15 \times 10 = 150$ in.-lb. Likewise, the moment of the weight of the ball is $75 \times x = 75x$ in.-lb. Therefore,

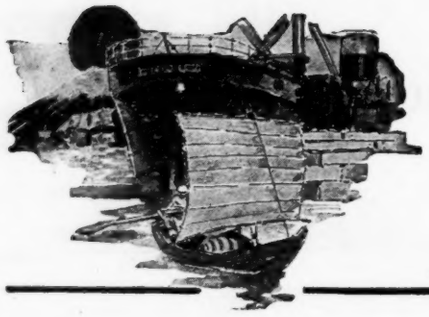
$$75x + 150 = 2{,}210$$

$$x = \frac{2{,}210 - 150}{75} = 27.46 \text{ in.}$$

Ques.—Give the reasons for putting a cap-piece on a prop and state what should be the size of caps and props to give the best results.

Ans.—Cap-pieces are used on top of posts, in mine timbering, for several purposes. A good cap serves to distribute the pressure over a large area of the roof and gives a better support to a frail roof. A good cap-piece of soft pine yields under the pressure of the roof and binds the top of the post together, thereby preventing the crushing of the timber and increasing the life of the post. Again, the condition of the prop over a post is an indication of the weighting of the roof. Finally, a post can be more readily set when it is wedged in position by a good cap-piece.

The width of the cap should not be less than the diameter of the top of the post and its length from 14 to 18 in. The best results are obtained, in post timbering, when the diameter of the small end of the post, in inches, is equal to its length in feet, which gives to the post an equal resistance to bending and crushing.



Foreign Markets and Export News

Progress in Low-Temperature Carbonization of Coal

Further developments in the low-temperature carbonization of coal are taking place in the United Kingdom, Consul Hamilton C. Claiborne, London, reports, and a number of important industrial concerns have entered into contracts to secure the products of this process. It is understood that three plants are to be operated in the execution of existing contracts, which contemplate the combustion of bituminous coal by low-temperature methods in order to conserve the potentially rich constituents, such as motor spirit or gasoline substitute, fuel oil, sulphate of ammonia, and gas. Among the industries which have recently made agreements to utilize the byproducts of the process are an electric power company, a large municipality, a firm of steel manufacturers, and a general manufacturing firm.

The exponents of low-temperature carbonization estimate that 1,000,000 tons of coal will be consumed annually under existing contracts and that plants for the exploitation of the process will supply, in addition to 7,000 million cubic feet of gas, the products shown in the accompanying table.

It is understood that the process has been patented in this country and abroad. Although it appears that any important industry normally consuming large supplies of bituminous coal may utilize the process, the greatest development in its future exploitation will be through the erection of large plants in the colliery districts, where the constituents can be economically extracted and distributed by private contract or public sale.

PRODUCTS YIELDED BY LOW-TEMPERATURE CARBONIZATION OF COAL

Products	Use	Approximate Output per Annum
		Gallons
Motor spirit	Motor cars, aeroplanes	3,000,000
Fuel oil	Suitable for Navy and ship's fuel	16,000,000
		Tons
Smokeless fuel	Domestic fuel	700,000
Sulphate of ammonia	Fertilizers and high explosives	9,000

Coal Exported by New Zealand During the Year 1919

Coal exported by New Zealand during 1919, according to a report by Consul General Alfred W. Winslow, Auckland, amounted to 138,174 tons, valued at $980,029, compared with 182,603 tons, valued at $1,105,805 in 1918, and 302,908 tons, valued at $1,373,146, in 1914.

Imports of coal in 1919 amounted to 391,434 tons, valued at $1,859,081, compared with 255,332 tons, valued at $983,529, in 1918, and 518,070 tons, valued at $2,718,252 in 1914.

Europe Gets First Shipment of British Columbia Coal

The first British Columbia coal to be shipped to Europe left Vancouver Island on or about July 28. It consisted of 4,500 tons of the product of the Canadian Collieries (D) Ltd., and is being carried by the motor ship Pacific of the Johnson Line to Sweden.

J. M. Savage, general manager of the Canadian Collieries, states that many inquiries are being received from Europe as to the possibility of securing coal from the Pacific Northwest. The present prices there are said to be comparatively low and, as the shortage on the Continent is acute, purchasers are driven to all possible sources of supply. The development of this new trade between British Columbia and Europe will be watched.

Prussian Coal Output Expands

For the first quarter of 1920, according to the *Colliery Guardian*, the output of coal in Prussia amounted to 29,060,157 tons (27,942,385 tons in 1919) from 288 (291) collieries, an increase of 1,117,772 tons. The distribution totalled 28,892,643 tons (27,563,376 tons), an increase of 1,329,267 tons. The number of persons engaged increased from 644,446 to 664,035. The brown coal output, from 330 (305) mines amounted to 20,425,821 tons (17,154,513 tons), an increase of 3,271,308 tons; and the distribution to 20,405,536 tons (17,147,124 tons), an increase of 3,261,412 tons. The number of persons engaged increased by 34,797 to 123,693.

Wages Adjusted in South Wales and Monmouthshire

The Conciliation Board, the *Colliery Guardian* states, has issued joint instructions to the colliery companies of South Wales and Monmouthshire as to payment for overtime and week-end work. Any overtime work from the commencement of the Sunday night shift to the termination of the Saturday morning shift will be after the working of a seven hours' period by underground men and 7¾ hours by surfacemen, and eight hours (including meal-time) for continuous shift men. Payment will be made on the following terms:

Underground: 7 hr. for 1⅛ turns, 5 hr. 15 min. for 1 turn; 3 hr. 56 min. for ⅝ turn, 2 hr. 37 min. for ½ turn, 1 hr. 19 min. or under for ¼ turn.

For day wage men other than continuous shift men, such as pumpmen and hitchers, overtime shall be paid in multiples of a quarter of a turn.

Surfacemen (excluding meal-times): 7 hr. 45 min. for 1⅛ turns, 5 hr. 50 min. for 1 turn, 4 hr. 22 min. for ¾ turn, 2 hr. 55 min. for ½ turn, 1 hr. 27 min. for ¼ turn.

Week-end work will be reckoned from the completion of a morning shift on Saturday until the commencement of the night shift on Sunday, and will be paid at the rate of time and a half, or 7¾ hours surfacemen, and 7 hours for underground men. Saturday afternoon shift, previously considered an ordinary shift, will in future be an overtime shift; and where it has been hitherto a qualifying shift for the purpose of the bonus turn, it will continue to be so.

Export Cargo Coal Shipments from United Kingdom Ports

(GROSS TONS)

District	June 1919	June 1920	First Six Months 1919	First Six Months 1920
Bristol channel ports	1,793,104	1,153,589	11,081,798	8,761,594
Northwestern ports	4,836	784	65,471	3,325
North eastern ports	1,098,803	596,348	5,951,972	4,334,127
Humber ports	81,532	4,918	276,155	324,753
Other ports on east coast	13,531	14,964	24,822	64,446
Other English ports	10		182	187
Ports on east coast of Scotland	193,809	146,961	793,443	864,758
Ports on west coast of Scotland	72,817	13,044	369,211	78,343
Grand total	3,258,442	1,930,608	18,563,054	14,431,533

Bulletin of Coal-Production Costs During May Issued

Federal Trade Commission Report Indicates a Variation of Only 5c. from April in Average Sales Realization, Cost and Margin—Limited Number of Operators Represented Makes Comparisons Unreliable

DETAILED statistics of coal-production costs during May, 1920, issued by the Federal Trade Commission cover returns from 680 operators producing about 20 per cent of the estimated total bituminous coal mined in the seventy-four mining districts of the United States during that month. They are compiled directly from the operators' reports without critical analysis or revision by the commission, making public immediately the best available information.

The summaries published in the May bulletin include cost of labor, cost of supplies and general expense (or overhead) involved in mining the coal, bringing it to the surface, preparing it for market and placing it on railroad cars for shipment. The total of these three costs is the f.o.b. mine cost shown by the commission. All costs and sales realizations shown are based on tons of 2,000 pounds.

Because of the failure of so many of the operators to report their May costs and sales realizations, the commission has some doubt as to the representative character of the figures presented. In some districts the tonnage of reporting operators is a small proportion of the total produced in those districts.

Costs, Realizations and Margins Shown

In Table I are shown for the principal producing regions of the United States the reported costs, sales realizations and margins of the 680 operators from whom complete reports for May, 1920, have thus far been received. With these costs are also shown the costs (revised by the commission), sales realizations and margins of the 2,482 operators from whom reports were received for the entire twelve months of 1918. The 680 operators had a production of 8,011,967 tons of commercial coal during May, 1920, and the 2,482 operators produced 497,416,437 tons of commercial coal during 1918 (an average of 41,451,370 tons monthly).

The average sales realization for the 680 operators was $3.31. By regions the sales realizations ranged from $3.04 per ton in the Central Competitive "Interstate" region, which produced 33 per cent of the total tonnage of the 680 operators, to $3.70 per ton in the Southwestern "Interstate" region, which produced 6 per cent of the total. Next highest in sales realization was the Eastern adjacent region (Central Pennsylvania, West Virginia, Maryland and Virginia), which had a sales realization of $3.63. The average labor cost for the United States was $2.07, and, by regions ranged from $1.91 per ton in the Central Competitive "Interstate" region to $2.78 per ton in the Southwestern "Interstate" region.

The total average for supplies was 31c. and for general expense 39c., thus giving a total f.o.b. mine cost for the 680 operators of $2.77 per ton. Margins ranged from 13c. per ton in the Southwestern "Interstate" region to 91c. per ton in the Eastern adjacent region. The average margin for the 680 operators in all the regions taken together was 54c. per ton. Their total average sales realization, cost, and margin did not vary more than 5c. per ton from the average figures shown for 812 operators in April, which is an important fact if the same relation holds for the non-reporting operators.

While figures are given in Table I for 2,482 operators in 1918, comparisons between these figures and those for the 680 operators reporting in May, 1920, should be made with much caution because of the difference in number of operators covered and difference between revised and reported costs and margins.

Table II shows the sales realizations and reported costs of 491 indentical operators for May, 1920, and the first quarter of 1920, with sales realizations and revised costs of the same operators for the year 1918. To facilitate comparisons of reported and revised costs and changes in margins, the actual amounts or revision found for these operators in 1918 have been shown in connection with the 1918 revised costs. While comparisons in the table are accurate for the 491 operators, it should be borne in mind that this is a relatively small proportion of the total number and may not be representative of the trend in the industry at large.

These 491 operators mined 101,388,478 tons during the year 1918 (averaging 8,449,040 tons monthly); 23,869,697 tons during the first quarter of 1920 (averaging 7,956,566 tons monthly), and 6,638,516 tons during May, 1920. In the first quarter of 1920 they receded 6 per cent from their average 1918 monthly production, and in May produced 21 per cent less than the corresponding month of 1918.

Operators Increase Sales Realization

As compared with the year 1918, the average sales realization of the 491 identical operators in Table II was 19c. higher in the first quarter of 1920 and 71c. higher in May, 1920. Their reported cost, however, was 29c. higher in the first quarter and 66c. higher in May. As a result their average margin, which was 57c. per ton (on the basis of reported costs it was 51c. per ton) in 1918, fell (on the basis of reported costs) to 41c. in the first quarter of 1920, but went up to 56c. (on the same basis) in May.

The absolute amount in dollars of the reported margin of the 491 operators (based on sales tonnage, not production tonnage) was less in May, 1920, by 15 per cent than their average monthly margin in 1918, though it must be considered that the amount of investment may have been appreciably different at the two periods and that the 491 operators may not be the representative of non-reporting operators in respect to margin. Subject to the same caution, the absolute reported margin, in dollars, of 59 of these operators who in the twelve districts reported May margins averaging, by districts, $1 per ton or more, was greater in May, 1920, by $238,154, or 88 per cent, than they reported as their average monthly margin in 1918.

The relative change in the situation between May, 1920, and the first quarter of 1920 is shown in Table III, where figures for 635 operators are given. The table also shows the average number of days worked in May,

TABLE I. MAY, 1920, SALES REALIZATION AND REPORTED COSTS OF 680 OPERATORS AND THE YEAR 1918 SALES REALIZATION AND REVISED COSTS OF 2,482 OPERATORS, BY GENERAL COMPETITIVE REGIONS

General Competitive Regions	May, 1920 No. of Operators	Sales Realization per Ton	Reported Costs per Ton: Labor	Supplies	General Expense	Total F.O.B. Mine	Margin per Ton[1]	Year, 1918 No. of Operators	Sales Realization per Ton	Revised Cost per Ton: Labor	Supplies	General Expense	Total F.O.B. Mine	Margin per Ton[1]
Central Competitive "Interstate"[2]	211	$3.04	$1.91	$0.26	$0.33	$2.50	$0.54	765	$2.45	$1.39	$0.25	$0.26	$1.90	$0.55
Eastern Adjacent[3]	188	3.63	1.96	.32	.44	2.72	.91	966	2.81	1.45	.28	.32	2.05	.75
Western Adjacent[4]	42	3.06	2.03	.29	.35	2.67	.39	138	2.75	1.75	.26	.26	2.27	.48
Southern Applachian[5]	77	3.55	2.30	.41	.43	3.14	.41	288	2.81	1.61	.29	.36	2.26	.55
Southwestern "Interstate"[6]	97	3.70	2.78	.34	.45	3.57	.13	171	3.13	2.15	.25	.34	2.74	.39
Rocky Mountain[7]	65	3.18	2.09	.31	.40	2.80	.38	154	2.73	1.63	.26	.30	2.19	.54
United States	680	$3.31	$2.07	$0.31	$0.39	$2.77	$0.54	2,482	$2.65	$1.49	$0.26	$0.29	$2.04	$0.61

[1] Margin is not the same as profit.
[2] Includes all of Illinois, Indiana, Ohio and the Southwest District of Pennsylvania.
[3] Includes all of Maryland, West Virginia, Virginia and the Central District of Pennsylvania.
[4] Includes all of Michigan, Iowa and District No. 1 of Kentucky.
[5] Includes all of Alabama, Tennessee and Districts Nos. 2, 3 and 4 of Kentucky.
[6] Includes all of Missouri, Kansas, Arkansas, Oklahoma and Texas.
[7] Includes all of Colorado, New Mexico, North Dakota, Montana, Wyoming, Utah, and Washington.

TABLE II. SALES REALIZATION AND REPORTED COST PER TON FOR 491 IDENTICAL OPERATORS, BY GENERAL COMPETITIVE REGIONS

General Competitive Regions	Year, 1918: Number of Operators	Average Monthly Production, Tons	Sales Realization	Revised F.o.b. Mine Cost	Margin[1]	Excess of Reported Cost Over Revised Cost	First Quarter, 1920: Average Monthly Production, Tons	Sales Realization	Reported F.o.b. Mine Cost	Margin[1]	Decrease of Production Compared with Monthly Average 1918		Increase of First Quarter, 1920, Reported Cost Over 1918 Reported Cost		May, 1920: Production, Tons	Sales Realization	Reported F.o.b. Mine Cost	Margin[1]	Decrease of Production Compared with Monthly Average in 1918		Increase of May 1920, Reported Cost over 1918 Reported Cost	
Central Competitive "Interstate"	150	3,033,385	$2.38	$1.84	$0.54	$0.03	2,779,933	$2.43	$2.10	$0.33	8%	$0.23	12%		2,116,565	$3.00	$2.46	$0.54	30%	$0.59	32%	
Eastern Adjacent	134	1,969,542	2.67	1.92	.75	.09	1,811,077	2.78	2.32	.46	8	.31	15		1,644,167	3.54	2.71	.83	17	.70	35	
Western Adjacent	36	545,005	2.53	2.01	.52	.03	515,408	2.68	2.30	.38	6	.26	13		469,920	3.04	2.63	.41	14	.59	29	
Southern Appalachian	47	516,193	2.66	2.07	.59	.09	478,689	2.86	2.61	.25	7	.45	21		463,760	3.63	2.92	.71	10	.76	35	
Southwestern "Interstate"	71	529,655	3.01	2.65	.36	.06	512,142	3.41	3.10	.31	3	.39	14		431,842	3.61	3.52	.09	8	.81	30	
Rocky Mountain	53	1,855,260	2.50	2.11	.48	.04	1,859,317	2.98	2.46	.52	..	.31	14		1,512,262	3.19	2.80	.39	18	.65	30	
United States	491	8,449,040	$2.56	$1.99	$0.57	$0.06	7,956,566	$2.75	$2.34	$0.41	6	$0.29	14		6,638,516	$3.27	$2.71	$0.56	21	$0.66	32	

[1] "Margin" is not the same as profit.

TABLE III. MAY, 1920, SALES REALIZATION AND REPORTED F.O.B. MINE COST FOR 635 IDENTICAL OPERATORS, BY GENERAL COMPETITIVE REGIONS

General Competitive Regions	May, 1920: No. of Operators	Production, Tons	Average Days Worked	Sales Realization	Reported F.o.b. Mine Cost	Margin[1]	First Quarter, 1920: Production, Tons	Average Days Worked	Sales Realization	Reported F.o.b. Mine Cost	Margin[1]	Increase of Reported Cost in May Over That in First Quarter	
Central Competitive "Interstate"	198	2,535,066	15	$3.03	$2.49	$0.54	9,867,564	54	$2.44	$2.12	$0.32	$0.37	17%
Eastern Adjacent	173	1,781,720	16	3.61	2.73	.88	5,853,608	52	2.78	2.34	.44	.39	17
Western Adjacent	39	475,126	17	3.04	2.64	.40	1,561,974	55	2.67	2.31	.36	.33	14
Southern Appalachian	70	669,908	18	3.56	3.10	.46	1,980,806	53	2.83	2.73	.10	.37	14
Southwestern "Interstate"	93	520,499	18	3.69	3.56	.13	1,814,354	57	3.45	3.15	.30	.41	13
Rocky Mountain	62	1,570,960	19	3.18	2.80	.38	5,775,240	66	2.97	2.46	.51	.34	14
United States	635	7,553,279	17	$3.30	$2.75	$0.55	26,853,646	55	$2.75	$2.37	$0.38	$0.38	16

[1] "Margin" is not the same as profit.

1920, which was seventeen, as compared with the monthly average for the first quarter, which was eighteen days. May was slightly better than April, for which month, as shown in the April bulletin, 767 operators averaged sixteen days.

The increase of 38c. per ton in the average reported May cost of the 635 operators, with the increase of 55c. in their sales realization, resulted in a 17c. increase in margin for May, 1920, as compared with the first quarter.

The increase of 38c. per ton, or 16 per cent, in total reported cost of these operators in May was chiefly due to the additional wage increase which became effective April 1, and the decrease in their production from an average of 8,851,182 tons per month in the first quarter to 7,553,279 tons in May, a decline of 16 per cent.

In the first quarter and in May costs of the 491 operators shown in Table II increased in a rough proportion to the extent of changes in tonnage. In May the increased cost attributable to the 27-per cent wage advance on April 1, 1920, is most nearly measured, as a maximum, by the figures for the group of forty-seven operators whose production tonnage did not change appreciably (group "Decrease 0-05" and "Increase 0-05"). This group had an increase in total f.o.b. mine cost (labor, supplies and general expense) of 51c. per ton, or 23 per cent, over 1918. In both cases increase in labor cost is by far the most important, though increases in cost of supplies and in general expense also had some effect. A similar calculation in the April bulletin for a somewhat larger number of operators indicated an increase of 47c. per ton, or 23 per cent, in costs due to the wage advance, which tallies fairly closely with the foregoing figures and tends to confirm their representative character.

Wholesale Price of Coal Rose Nearly 2½ Per Cent in July

While Wholesale Food Prices Throughout the Country Dropped 4 Per Cent, Retail Figures Increased 1 Per Cent

A FURTHER decline in the general level of wholesale prices in the United States in July is shown by information collected in representative markets by the Bureau of Labor Statistics of the U. S. Department of Labor. Measured by changes in the bureau's weighted index number, in which each commodity has an influence commensurate with its importance in the country's markets, the decline from the June level was a little more than 2½ per cent.

Farm products, food and clothing showed considerable price recessions from the preceding month. The decrease for farm products was 2.9 per cent, for food it was nearly 4 per cent, and for clothing it was practically 5½ per cent. Smaller decreases were recorded for lumber and building materials, chemicals and drugs, and miscellaneous commodities. On the other hand, fuel and lighting materials continued upward with an increase of nearly 2½ per cent. Metals and metal products registered a slight increase, while the group of house-furnishing goods showed no change in the general price level.

Despite the drop in wholesale prices, however, the average family expenditure increased 1 per cent in thirty-two cities, among them New York, Chicago, Cleveland, Buffalo and Pittsburgh, and 2 per cent in Boston, Baltimore, Washington, Milwaukee, New Orleans and elsewhere. For the whole country prices increased in July over June for 29 out of 43 food articles the average man has to buy.

Indiana Operators Begin Delivery of Coal To State Institutions

COAL-MINE operators of Indiana who through the Indiana Bituminous Coal Operators' Association agreed several days ago to accept contracts to sell coal to state institutions at prices ranging from $2.95 to $3.50 a ton at the mines have begun delivery of coal to some institutions, and contracts with individual companies are being signed, says Maurice C. Shelton, secretary of the state joint purchasing committee.

A committee of the association composed of Jonas Waffle, C. G. Hall and Homer B. Talley has allotted the coal demands of the state institutions to the members of the association. A total of 200,225 tons is to be supplied by companies in from 900 to 12,000-ton quantities. The allotments have been made among thirty-eight mining companies and the Knox County Operators' Association and the Southern Indiana Coal Trade Bureau. The association and bureau will divide their allotments among the members.

The committee of operators assigned 3,000 tons to the LeNoir Coal Co. for delivery in the Indiana Village for Epileptics at Newcastle, although this company is not a member of the operators' association. Members of the family of Governor Goodrich hold an interest in the mine, although Governor Goodrich has said he owns no stock in the mine. It is understood, however, that he will use his influence to have his company refuse to sign a state contract until after Jan. 1, when his term of office expires. In this event, the other operators would provide coal for this institution until Jan. 1, and the LeNoir company would make up to the other companies the coal the supplied the Village for Epileptics, it is said.

Approximately two-thirds of the institutions' needs is for fourth vein mine-run at $3.20 a ton, one-sixth will be screenings at $2.95 and one-sixth prepared sizes at prices ranging from $3.35 to $3.50 per ton. The committee of the operators' association has notified each company of its allotment. "The allotments were made on a percentage basis," the letter said, "arrived at by taking the daily tonnage capacity of the various mines involved and applying same to the total tonnage to be furnished. The division of the tonnage would seem to be an equitable one and we would ask that each member company make a special effort to carry out this arrangement, as we feel that each man is on his honor to make good our pledge to the joint purchasing committee of the state."

Coal Handling Methods at Curtis Bay To Be Improved

MEMBERS of the New England Coal Commission were in Washington last week complaining that deliveries through Baltimore were unsatisfactory. They had no complaint to offer as to the movement of coal from Hampton Roads. As a result there has been a thorough investigation of the Baltimore situation, which disclosed that dumpings at Curtis Bay had been abnormally low. The efficiency of the work both at ship side and in the yards at Curtis Bay was condemned. Steps have been taken which are expected practically to double the amount of coal handled at Curtis Bay. The opinion also is expressed that there has been too great laxity in the issuance of permits, as an accumulation of no less than 10,000 cars had taken place on the Baltimore & Ohio, the Western Maryland and the Pittsburgh and Lake Erie railroads.

Mine Superintendents to Study Handling Methods at Hampton Roads

SUPERINTENDENTS of the fifteen mines of the White Oak Coal Co. were entertained by the officials of the company at a luncheon in Washington Aug. 20. D. J. Parker, in charge of the mine-rescue work of the Bureau of Mines; E. J. McVann, secretary of the the Smokeless Coal Operators' Association; S. A. Scott, general manager of the White Oak Coal Co., and C. B. Edwards, the manager of sales of the same company, were speakers at the luncheon.

The party proceeded from Washington to Norfolk, with the idea of acquiring a detailed knowledge of coal handling procedure at Hampton Roads.

Indiana Production Increases 50,000 Tons

PRODUCTION of coal at 190 mines in Indiana during the week ended Aug. 14 is reported as 525,421 net tons, as compared with 475,000 tons produced by 188 mines the week preceding. These mines operated 69.24 per cent of the full time, with car shortage responsible for 22.23 per cent of time lost. Of the remaining causes of lost time mine disability was responsible for 4.02 per cent and labor trouble for 4.51 per cent.

Shipments of Coal Through Panama Canal Total 65,261 Tons in June

DURING June 65,261 tons of coal passed through the Panama Canal. Practically all of the coal originated at Hampton Roads, and it was destined for the most part to Chilean ports. One cargo went to San Francisco and one to Honolulu.

Survey Geologist Inspects Pocono Coals

MR. CAMPBELL, acting administrative geologist of the U. S. Geological Survey, has returned to his office in Washington after an examination of Pocono coals near Blacksburg, Va.

Operator Brings Suit to Test Law Creating Indiana Coal Commission

THE constitutionality of the Fuel and Food Commission Act passed by the special session of the State Legislature in Indiana recently is attacked in a suit filed in the Federal Court Aug. 17 by the American Coal Mining Co., of Brazil, Ind., asking that the commission be enjoined from enforcing the act. The bill was designed to fix prices, wholesale and retail, on coal and assesses a license fee on all operators and wholesale and retail coal dealers.

The complaint names as defendants the Fuel and Food Commission recently created, Governor James P. Goodrich, Otto L. Klauss, State Auditor, and Jesse E. Eschbach, chief examiner of the State Board of Accounts, as members of the commission and individuals.

Hearing on the complaint probably will be held in the Federal Court Sept. 6 and 7 before Judge Francis E. Baker, of Chicago, of the Circuit Court of Appeals, in the absence of Judge A. B. Anderson, of the Indiana district.

The complaint avers that the act is in violation of both the Constitution of the United States and the Constitution of the State of Indiana and asks a temporary injunction pending final hearing.

James W. Noel, counsel for the commission, said that the state will contend that the act is valid under the police power of the state, and will fight any action to prevent its operation. The principle on which the regulation is based, he said, is not new or socialistic, but one that has been recognized for centuries. The only question involved, he said, is whether the industry is "affected with a public interest."

The complaint alleges that before the passage of the act any emergency that existed was not due to causes within the control of persons engaged in the coal industry, but to lack of railway cars, the depletion of reserve stocks of coal, the miners' and switchmen's strike and embargoes necessitated by the latter. Statistics are given to show that of the coal mined in Indiana in 1917, 44⅝ per cent was consumed in the state, 27⅛ per cent was shipped to points outside the state and 28⅜ per cent was used by the railroads. During the same period approximately 43 per cent of the coal consumed in Indiana was produced in other states.

If a sufficient number of coal cars is supplied in the commercial mines of Indiana, the bill avers, and they are permitted to work without interruption, they will provide sufficient coal to meet every demand of the state during the winter of 1920-21. The bill declares that the Coal Commission Act does not provide a remedy for the causes of complaint arising prior to the time of the passage of the act and that the powers of the commission are not of a nature calculated to remove the causes of the lack of supply, and if forced will result in further aggravating and increasing the difficulty of supplying consumers.

The bill contends that section 7 of the act is unconstitutional in that it deprives the plaintiff of its liberty and property without due process of law, as the required license fee of $25 is in excess of the cost of issuing the license. Sections 8 and 9 are alleged to be in violation of Article 14 of the Federal Constitution in that they deprive the plaintiff of his liberty to contract for the sale of his property. Section 9 also is held to be invalid for the reason that it impairs the obligation of contracts entered into by the plaintiff with customers in other states. The section is further held to be invalid because it conflicts with the section of the Federal Constitution giving Congress the power to regulate commerce among the states.

The complaint alleges that section 20 of the act is invalid because in empowering the commission to fix priorities it gives it authority to appropriate, seize and allocate the property of the plaintiff. Jesse Eschbach, when notified of the filing of the suit by U. S. Marshal Mark Storen, declared that he would continue to enforce the provisions of the act until restrained by court order.

He announced that Howard S. Young, of the law firm of Fesler, Elam, Young and Carter, had been employed to assist James W. Noel, counsel for the commission, and Attorney General Eli Stansbury, in defending the case. Attorneys for the plaintiff are Charles Martindale and the firm of Whitcomb and Dowden of Indianapolis and the law firm, Cooper, Royse, Bogart and Gambill, of Terre Haute, Ind.

From the array of legal talent employed on both sides of the case the coal operators and the state both are preparing for one of the most spirited legal battles ever waged in an Indiana court. In the fight on the side of the operators are the wholesalers and retailers, both classes of which are assessed the license fee and are governed similarly to the operators under the operation of the act.

The law went into effect immediately after its passage by the Legislature and signature by the Governor, and from the first it was almost certain that the coal industry of Indiana would fight it. While officials of the commission assert that they intend proceeding with its enforcement just the same as if no suit had been filed, little activity has characterized the commission's work since the law went into effect. At the present time most of its activities have hinged about conferences in which a "fair price for coal" has been the main issue.

Capital Moves to Avert Coal Shortage

THE Commissioners of the District of Columbia have appointed a committee to see what steps can be taken to avert a shortage of coal in the District of Columbia next winter. In addition to investigating delays on contracts and on spot purchases, the committee also is scrutinizing prices. At present anthracite is selling $13.50 to $16 a ton and bituminous coal at $10 a ton.

Increase of 39 Per Cent in Miners' Earnings, Labor Data Show

Statistics of Department of Labor Indicate That Men Were Working More Steadily in July Than a Year Ago

DATA collected by the Bureau of Labor Statistics, Department of Labor, from sixty-eight coal operators in the United States show a decrease of 4.7 per cent in the number of employees on their payrolls in July, 1920, compared with July, 1919, and an increase of 31.7 in the amount of payrolls in July, 1920, compared with the same month a year ago. These sixty-eight operators had 19,889 men on payroll in July, 1920, compared with 20,877 in July, 1919. The amount of money paid to the men was $1,422,881 in July, 1920, and $1,080,317 the same month of 1919. These figures are for one pay period of two weeks in July, and not for the entire month.

Actual Earnings Show Steadier Work

If the total amount that was disbursed for payroll be divided by the number of men on the payroll, it will be found that in the half pay period of July, 1920, the average pay per man was $71.50, and in the half pay period of the corresponding month in 1919, $51.70. The increase per man in pay was about 39 per cent. Inasmuch as the wage advance, that is the advance in rate of pay, in that period has been only 27 per cent, it is obvious that the men have been working more steadily this year than last year, which fact, of course, is brought out by the statistics of production.

The number of operations included in these figures is so small, however, that it is not fair to draw any conclusion regarding the earnings of coal mine labor from the data. Figures also are presented from eighty-six coal operators for June and July, 1920. These figures show for the eighty-six operators, 23,734 men on payroll in July compared with 23,960 men on payroll in June, a decrease for July over June of nine-tenths of 1 per cent. The amount of money represented by the payroll was $1,726,874 in July, a decrease of 3.6 per cent compared with $1,790,996 in June.

Interesting Data of Other Industries

Similar statistics for thirteen manufacturing industries in addition to coal mining are contained in the report of the Bureau of Labor Statistics. Comparing the figures of July, 1920, with those of identical establishments for July, 1919, it appears that in eight industries there was an increase in the number of persons employed, while in six there was a decrease. The largest increase, 32.8 per cent, is shown in men's ready-made clothing, while paper making and cigar manufacturing show increases of 15.6 per cent and 9.9 per cent respectively. Decreases of 55.5 per cent in woolens and 6.1 per cent in boots and shoes are shown. Thirteen of the fourteen industries show an increase in the total amount of the payroll for July, 1920, as compared with July, 1919, and one shows a decrease. The most important percentage increase, 70.3, is in men's ready-made clothing. A decrease of 43.6 per cent is shown in the woolen industry.

Comparing June and July of this year, the figures show that in three industries there was an increase in the number of persons on the payroll in July as compared with June, and in eleven industries a decrease. The greatest decrease, 55.3 per cent, was in the woolen industry. In comparing July with June one industry shows an increase in the amount of money paid to employees, while thirteen show a decrease.

Coal Consumed by Electric Power Plants, By States, During May

ELECTRIC power produced in the United States during May,* 1920, according to statistics issued by the U. S. Geological Survey, required the combustion of coal in net tons indicated in the following table:

Alabama	15,282	New York	343,441
Arizona	656	North Carolina	18,156
Arkansas	6,536	North Dakota	11,663
California	0	Ohio	324,462
Colorado	30,573	Oklahoma	9,433
Connecticut	52,691	Oregon	217
Delaware	10,263	Pennsylvania	444,231
District of Columbia	20,640	Rhode Island	22,859
Florida	1,445	South Carolina	9,475
Georgia	9,407	South Dakota	5,542
Idaho	0	Tennessee	23,288
Illinois	340,491	Texas	18,862
Indiana	159,030	Utah	10
Iowa	74,622	Vermont	153
Kansas	39,166	Virginia	32,958
Kentucky	38,270	Washington	3,819
Louisiana	10,883	West Virginia	101,416
Maine	317	Wisconsin	65,533
Maryland	22,512	Wyoming	10,775
Massachusetts	114,171		
Michigan	149,586	Total	2,840,771
Minnesota	24,366		
Mississippi	10,048	Total April	2,932,093
Missouri	92,995	Total March	3,265,039
Montana	3,821	Total February	3,275,641
Nebraska	35,985	Total January	3,619,069
Nevada	225		
New Hampshire	2,883		
New Jersey	122,206		
New Mexico	4,808		

* Table for January, February, March and April was printed in *Coal Age* July 29, page 253.

The average daily production of electricity in kilowatt-hours for the first five months of 1920 was as follows: January, 124,700,000; February, 119,800,000; March, 120,800,000; April, 119,300,000; May, 114,600,000.

The proportion of each monthly total produced by water power is 33, 33, 38, 41 and 42 per cent, respectively, an increase in the amount of kilowatt-hours produced by water power in May of about 27 per cent over the amount produced by water power in January and February. This increase is due largely to the increase in stream flow.

New Rates to Add $200,000,000 to Coal Freight Charges

NO LESS than $200,000,000 will be added to the amount which must be paid in freight charges for coal transported under the new schedule of railroad rates. An estimate to the foregoing effect has been made by a traffic expert, at the request of the National Coal Association. The details of the estimate are not available at this time.

Fire at Scranton Mine Breaker Causes $200,000 Damage

A FIRE at the Briggs breaker of the Scranton Coal Co., a New York, Ontario & Western R.R. interest, in West Scranton, Pa., Saturday, Aug. 21, caused $200,000 damage. The mine and breaker employed 1,000 men and boys, producing 1,200 tons of coal a day. None of the workmen had entered the mine before the fire started.

Labor Flows to and from Hard-Coal Fields

AS THE outcome of the strike at the mines of the Pennsylvania Coal Co. about the contract system many mine workers are leaving the anthracite region and some may never come back. The agents of the salt mines are finding the idle men good prospects for recruits. Some have gone to Buffalo, N. Y., and Detroit, Mich. These men probably will be lost to the anthracite region. Not so the men who are obtaining work on the roads at Hunlock's Creek, Nicholson, Bernice, New Milford and Port Jervis. Their new work is hard, the sun hot and the work seasonal. These men will be back as soon as the strike is settled.

However, wages are good in the anthracite mines and will be better yet after the adjustment. Furthermore, ett Lauck to the contrary notwithstanding, work is and will be steady. These considerations are bringing farmers to the mines. Harvesting is over and if they can get by the examining board they will go to mining. A number presented themselves at Hazleton Aug. 2.

Central Pennsylvania Mine Workers Ask Increase of 50 Per Cent

AS THE result of the action of the special convention of District No. 2, United Mine Workers of America, which was held at Du Bois, Pa., Aug. 19 and 20, 60,000 coal miners of central Pennsylvania will demand 50-per cent increase per ton in mining rates on coal three feet six inches thick or over, an additional 25c. a ton on every six inches under that thickness, and a 50-per cent increase for day workers. The convention adjourned after a two-day consideration of wages paid in the district.

Wagon mines are reported to be now paying $10 a day for day labor and $2 a ton for mining coal. Men in these wagon mines are said to be making from $30 to $50 a day.

A policy committee to take up the question of increased wages for the 60,000 miners of District 2, United Mine Workers of America, was chosen at the opening session of the convention.

Election of the committee followed discussion of the prices charged consumers by the operators, and the tonnage rate generally prevalent in the district. Figures showing the excessive prices secured by many operators were presented by delegates from the districts where such practices are in vogue by operators.

The policy committee, which formulated the demand to be made of the operators, has become the scale committee and will ask the operators' association to meet and discuss the new demands.

In the event that the operators refuse to meet with the committee, the convention will reconvene to consider methods for securing the desired increases. Another session will have to be held, in any event, to act upon the report of any agreement that may be made by the scale committee.

Following adoption of the recommendation of the policy committee, the delegates unanimously adopted a resolution endorsing the candidacies of all the Labor Party candidates and instructed their executive officers to render necessary financial support for the candidacies of William Welch, of Nanty Glo, Labor Party candidate of the Nineteenth Congressional district; Patrick McDermott and U. Ed. Swartzentruber, legislative candidates in Cambria County.

The entire proceedings of the convention were harmonious, delegates taking unanimous action on practically every motion or resolution before them for consideration.

Labor Conditions Are Still Unsettled in West Virginia

THE pot is still boiling in the West Virginia coal fields. After several hearings behind closed doors E. H. Peters, president of sub-district 4 of district 17 of the United Mine Workers, has been relieved of his office. As nearly as can be learned, the charge preferred against him was insubordination.

Although progress is reported concerning the spreading of the strike in Morgantown & Kingwood territory, it is nevertheless admitted that gains in operation are being made by some of the companies affected. It is stated that the mines at Bretz and Masontown are being operated continuously, although the first-named place is being picketed. It also is admitted that workmen at the Penn-Mary mines, as well as those in the employ of the Connellsville Basin Coal & Coke Co., are receiving higher wages than the union scale calls for in many instances.

Trouble brewing for some time at Mohawk, near the McDowell-Mingo County line in West Virginia, broke on Aug. 21 when fire was opened on the coal plant at Mohawk. This fire was returned by deputy sheriffs and for a time bullets flew fairly thick. However, no casualties are reported. Further difficulty is feared as the time draws near when cold weather will make it necessary for striking miners to abandon tent colonies.

On Sunday afternoon, Aug. 22, Ed Scott, a miner of Kayford, Kanawha County, W. Va., was shot and severely wounded at a meeting of miners at Whitesville, Boone County. Little importance strike-wise is attached to this shooting, it appearing that Scott entertained strong enmity toward officials of the United Mine Workers, of which organization he was a member and ex-officer. Some witnesses of the shooting say that Scott was wounded while in the act of drawing a gun.

It is stated that there is less likelihood of a demand being made for an increase of wages in the New River Field than in district 17 following the separate agreement reached concerning wages in the Illinois field. Changes in the New River contract are contingent upon similar changes in the Central Competitive Field, and unless all the districts embraced in this latter field procure an increase in wages, it is considered doubtful that this question will be brought up in the New River region or the contract now in force be abrogated. Should such abrogation be resorted to it is believed that difficulty might be experienced in the future in securing any contract at all.

It is reported that coal operators and miners in Illinois on Aug. 26 agreed upon an increase of $1.50 per day, affecting 40,000 mine workers. The old schedule for tonnage workers remains in force, the new rate applying only to daymen, hoisting engineers, drivers and the like.

The operators state that fines imposed for remaining out on an unauthorized strike will not be remitted. Many of the daymen struck recently in violation of contracts and without the sanction of national officers.

The biennial meeting of the miners of the 5th district of Ohio will be held at Bellevue in October. It is expected that there will be an attendance of 20,000 men at this meeting.

News from the Capital

By Paul Wooton

Easier Coal Prices Not Attributed to Department of Justice Threats

THE tendency of the Department of Justice to take to itself the credit for the softening of coal prices is regarded very generally as being entirely unwarranted. One prominent man connected with the industry declared that "the department's threats have had the same influence on coal prices that my activities in the coal industry have had on the price of silver."

New England and Lake Movement Considered Satisfactory

REPORTS to the Commission on Car Service of the American Railroad Association indicate that the New England and Lake programs are being carried out in a highly satisfactory manner. There has been some shortage of boats at Hampton Roads and at Philadelphia but steps have been taken to meet that difficulty. The all-rail movement to New England is exceeding even the more optimistic estimates.

Important Railway Project Would Affect Movement of Coal to Tidewater

PLANS of an important railroad development were revealed unexpectedy at the hearing conducted by the Federal Power Commission last week on the Great Falls project. The commission had before it the recommendation of the Corps of Engineers providing for the building of dams which would close the entire Potomac basin at a point a few miles above Washington. The project was objected to strenuously on the ground that it would close the "best possible route from the coal fields to tidewater." The scheme, as revealed at the hearing, is to fill in the Chesapeake and Ohio Canal and use it as the right of way over which the Western Maryland, the Norfolk & Western and the Cumberland Valley railroads can find a low-level route from the coal fields to Chesapeake Bay by way of Washington.

Operators Expect Service Order No. 14 to Help Labor Situation

OPINION in Washington differs as to the value and advisability of the service order of the Interstate Commerce Commission restricting the use of open-top cars at wagon mines. Representatives of operators express the opinion that this is the most important step taken to increase production since the open-top car priority order. This opinion is based on their belief that many more cars will now become available at the larger mines and that this will prevent the demoralization of labor. It is asserted that the earnings of miners at the wagon mines frequently exceed $30 a day and have gone as high as $50 a day.

On the other hand, it is pointed out that the principal railroads have been carrying out the practice all summer prescribed in the Interstate Commerce Commission's recent order. The wagon-mine rule in car distribution is practically the same as that applied by the Fuel Administration and the Railroad Administration during the war. When there has been any shortage of shipments, the railroads themselves have continued the practice since.

Information given to the Interstate Commerce Commission is that more than 700 wagon mines are in operation in central Pennsylvania alone.

North Carolina Industries Insist That They Need More Coal

A COMMITTEE headed by R. H. Sykes, of Durham, N. C., representing industries in that section, went to Washington last week to appeal to the Interstate Commerce Commission for a better fuel supply. The committee contends that the New England and other priority orders have interfered unduly with their ability to secure the coal.

Legislative Committee to Protect Coal Interests at Washington

PLANS are being worked out for a legislative committee, which will sit in Washington during sessions of Congress, to work in the interest of all activities of the coal trade from production to final disposition of the product. The plan is in its incipiency, but it is the intention to have the committee ready to function with the reassembling of Congress, as legislation of great importance to the coal trade will be proposed at the next session of Congress.

Rail-Rate Increase Relieves Treasury in Payment of Guarantee to Roads

DURING the six months of the Government guarantee to the railroads some $567,000,000 was paid out to the carriers. With the increased rates in effect, however, taxes derived from payments of railway charges will be increased by $55,000,000. Thus the Treasury will be relieved of a heavy disbursement and will have a substantial increase in its income.

Cushing Plans Nation-Wide Warning Against Nationalization of Coal Industry

CONVINCED that the welfare of the country would be endangered by having half of its industries slave and half free, George H. Cushing, managing director of the Wholesale Coal Association, has arranged an itinerary for a nation-wide speaking tour. He declares that the coal industry is rapidly getting into the public-utility class. This will mean that earnings will be held at six per cent or some other arbitrary maximum. The hazard in mining coal is so great, he believes, that such a program will cause a rapid decline in the industry, thereby making it necessary for the Government to embark in the coal-mining business. Unless the public can be educated in time, he sees no escape from nationalization.

Rail Movement to New England Gains

RAIL movement to New England recovered again during the week ended Aug. 21. Cars forwarded through the five gateways of Harlem River, Maybrook, Albany, Rotterdam and Mechanicsville, as reported to the Geological Survey by the American Railroad Association, totaled 5,369 cars. This was an increase of 509 cars over the preceding week and exceeded by 1,597 cars the movement during the corresponding week of 1919.

Wagon Mines Denied Open-Top Cars By Service Order 14

WAGON mines without private sidings and unless provided with loading platform or tipple from which coal may be dumped in the railroad car from an elevation are practically prohibited from use of open-top cars by Service Order No. 14, issued on Aug. 25 by the Interstate Commerce Commission. This action by the Federal Government supplements that of the Pennsylvania Public Service Commission of several weeks ago, so that wagon mines now are largely eliminated in both intra- and interstate shipments. Of course these orders have no effect on the production and shipment of coal by the small mines when the use is local and the entire delivery is made by wagon or truck.

It is pointed out that the Interstate Commerce Commission adopted this policy toward wagon mines because of their wasteful use of transportation and cars, but, furthermore, the wagon mine, being almost entirely a producer of spot coal, is undesirable because of the effect such operations have on labor and prices.

The text of Service Order No. 14 follows:

It appearing in the opinion of the commission that an emergency exists which requires immediate action because of the shortage of equipment and congestion of traffic which continue to exist upon the lines of each and all common carriers by railroad within the United States;

It further appearing that the practice of loading coal into open-top cars at wagon mines results in undue delay and wasteful use of equipment, and aggravates the existing shortage of equipment and congestion of traffic, when such wagon mines are not in a position to load cars upon private tracks, and have no tipple or other arrangement which permits coal to be dumped into the car from an elevation, and that such wagon mines can be reasonably served by the use of closed-top cars and the regulation hereinafter prescribed will promote the service in the interest of the public and the commerce of the people, and is reasonable and just;

It further appearing that the existing rules, regulations and practices of said common carriers as to the supply and distribution of open-top cars to wagon mines adversely affect car conservation and the ability of said carriers properly and completely to serve the public in the transportation of coal, so far as they conflict with the regulation hereinafter prescribed,

It is ordered that from and after the date of the service of this order, and until April 1, 1921, the common carriers hereinbefore described be, and they are hereby, authorized and directed to establish and observe the following rule, and shall be governed thereby in the supply and distribution of open-top cars to wagon mines:

"Upon any day when a common carrier by railroad is unable to supply any mine upon its line with the required open-top cars, open-top cars shall not be furnished or supplied by it to wagon mines which are not in a position to load such cars upon private tracks and from a tipple or other arrangement which permits the coal to be dumped from an elevation into the car, until all other mines have been fully supplied with open-top cars. Open-top cars furnished and supplied wagon mines upon private tracks and so equipped with a tipple or other arrangement for dumping coal from an elevation into a car must be counted against such wagon mines under uniform mine ratings and car-distribution rules, the same as are applied to established tipple mines."

It is further ordered that all rules, regulations and practices of the said carriers with respect to car service be, and they are hereby, suspended and superseded in so far only as they conflict with the provisions of this order.

And it is further ordered that copies of this order be served upon the carriers hereinbefore described, and that notice of this order be given to the general public by depositing a copy hereof in the office of the secretary of the commission in Washington, D. C.

Daymen Return to Work in Indiana, but Diggers May Demand Raise

COAL miners in Indiana, who had been idle since Aug. 19 because of the wage controversy between daymen and operators, began returning to work Aug. 26 following an agreement reached at a joint conference in Terre Haute. Under the terms of agreement the day and monthly men receive a substantial increase, the new schedule to be effective from Aug. 16. All local unions of district 11, United Mine Workers of America, which comprises all the Hoosier bituminous field with the exception of the block-coal mines around Brazil, which are in district 8, were informed of the action by Edward Stewart, the district head, in a telegram as follows:

"Joint committee has agreed on 25-per cent increase for all inside day labor on present wages received and $1.50 per day for all outside labor and monthly men, effective Aug. 16."

The agreement in detail is as follows:

(1) That the day wages now being paid to inside men and boys be increased 25 per cent.

(2) That all monthly men and outside daymen's wages be increased $1.50 a day.

(3) That any extra time paid daymen and monthly men directly or indirectly for any reason shall continue to be paid.

(4) That the revised schedule of wages shall be effective as of Aug. 16.

It was estimated that about half the miners were working Aug. 25. The telegram sent out did not reach all the locals in time to issue a call for the return to work on that day. This was the case at Bicknell, where the fourteen mines remained closed.

The action of the daymen in refusing to work followed the failure of the joint scale committee representing the Central Competitive Field to reach a decision at its session at Cleveland.

The wage matter was then referred to the various districts for decision, this being the first time in several years that the sub-organization has been called on to settle such a matter.

Despite the agreement reached the unrest in the Indiana field has not been settled completely, according to men prominent in the union. They say that the diggers will demand a 10-per cent increase and that the field will soon face another tie-up. Some of the diggers say that until the operators reduce the price of coal at the mines by the restoration of a contract selling basis, eliminating the open market, they will persist in their demand for their part of the "booty."

Wholesalers Adopt Resolution To End Resale Abuse

Committee Appointed Will Formulate Dealers' Business Policy, Fix Margin of Profit and Adjust Grievances of Bituminous Consumers

WHOLESALERS and jobbers representing the New York, Philadelphia and Baltimore coal trade, in a meeting in New York City on Aug. 24, formed a special committee, with George M. Dexter as chairman, John W. Whiteley, vice-chairman and Charles S. Allen as secretary, to formulate and announce policies which should govern the wholesale coal trade in the conduct of its business in the present emergency.

A letter from the Attorney General to the committee, stating that the Department of Justice will look with favor upon efforts by dealers to eliminate the employment of repeated resales, was first considered. A resolution was adopted to the effect that members of the wholesale coal trade refrain from the purchase or sale of coal which has passed through the hands of more than one other wholesaler. The following is the text of the pledge which the wholesalers are asked to sign:

> We, the undersigned, engaged in the wholesale bituminous-coal business, hereby agree each with the other, that from the date hereof to and including the 31st day of March, 1921, there shall not be more than two wholesale houses connected with the sale and delivery of the coal from the mine to the consumer, or the retailer, for retail purposes. A sales agent, for the purpose of this agreement, is to be regarded as a wholesaler.
>
> The wholesale house purchasing coal from another wholesale house shall require, and the seller shall give, a written statement, certifying that the coal was not purchased from another wholsesale house.

One of the most important matters considered and passed on was the question of the middleman's margin. The recommendation of the committee is that with the exception of export shipments the maximum margin of gross profit to be taken by any wholesale house on any spot transaction shall be 10 per cent of the invoice price at the place of sale. The committee has announced that it also is of the opinion that the unsettled and panicky state of mind of many consumers of bituminous coal is due to the failure of contractors to meet their obligations and that many of these grievances can best be settled by a full discussion of specific controversies before a disinterested tribunal, and the committee has offered to act as that tribunal. Consumers of bituminous coal are invited to present (Mr. Allen, the secretary, has offices at 90 West St.) any grievances they may have, for the committee has constituted itself a committee on correction of abuses in the trade and purposes to investigate and apply a proper remedy where necessary.

That the excessive demand for coal has resulted in considerable duplication of orders, the committee considers as obvious, therefore consumers are invited to communicate with the committee, which is authorized to employ investigators for the purpose of ascertaining all of the facts in each case in order that the committee may give assistance where action is needed and not where consumers have an undue proportion of coal in storage. Members of the coal trade, consumers and the public generally are invited to inform the committee of instances where consumers are overstocked in order that coal may be diverted to more needy users.

The priority orders of the Interstate Commerce Commission are declared to have served their purposes, and the committee recommends that so far as these orders affect the Eastern market, especially the New England order, No. 11, they be discontinued.

The committee will meet again on Thursday, Sept. 2. The following members of the committee attended the meeting on Aug. 24:

George M. Dexter, John W. Whiteley, M. F. Burns, representing the New York wholesale trade; Harlow C. Voorhees and F. M. Ramsay, representing the Philadelphia wholesale trade, and Benjamin H. Read, representing the Baltimore wholesale trade; Gibbs L. Baker, general counsel, and Charles S. Allen, secretary of the Wholesale Coal Trade Association of New York, Inc.

U. S. Chamber of Commerce Seeks to Force Carrying Out of Contracts

MOST cancellations of orders are largely due either directly or indirectly to chaotic conditions arising from war times, according to a report on a survey of the manufacturing field made by the Chamber of Commerce of the United States. The percentage reporting that customers have canceled orders because of failure to recognize the sacredness of contract, and the legal force and responsibility of an order received and accepted in good faith was comparatively small.

There is danger, however, the report declares, that unless a definite stand is taken against any tendency to regard cancellation of orders as unimportant, and unless there is cultivation of a general feeling that an order is to be considered more than a mere memorandum, this evil may assume serious proportions.

The investigation of cancellations was made by the Fabricated Production Department of the National Chamber in response to complaints from members that production was being interfered with to such an extent that plants that had sufficient orders to run for months, were curtailing their efforts or shutting down even though production of their product is below normal and stocks in the hands of wholesalers and retailers are light.

Railway Executives and Traffic League Men Act on Demurrage Charge

COMMITTEES representing the Association of Railway Executives and the National Industrial Traffic League held a meeting in New York City on Thursday, Aug. 26, to take action regarding Special Permission No. 50,231 issued by the Interstate Commerce Commission on July 31, which provides for a storage charge of $10 per day on coal cars. This joint meeting was preceded by a meeting of the committee on Demurrage of the League, held on Wednesday, Aug. 25, in the rooms of the Merchants' Association, Woolworth Building.

The meeting on Thursday was held in the offices of Daniel Willard, president of the Baltimore & Ohio Railroad Co., and while no official announcement was made as to the outcome it was learned that committees representing both the league and the railway executives had been appointed to consider the order and to make any recommendations to the Interstate Commerce Commission thought necessary.

President Approves Majority Decision of Anthracite Coal Commission Despite Strike Threat

Consideration Men and Outside and Inside Company Employees and Monthly Men to Receive 17-Per Cent Increase—Miners' Laborers and Consideration Miners' Laborers to Get Same Wages as Company Laborers—Contract to Last Two Years—Miners Get 20-Per Cent Advance

AS A direct reply to the declaration of the insurgent convention of mine workers, held Aug. 28 in Wilkes-Barre, Pa., that the employees of the anthracite operations would strike Sept. 1 if the majority report of the Anthracite Coal Commission was approved by the President of the United States, Woodrow Wilson on Aug. 30 accepted that report and declined to have printed the report of Neal J. Ferry, the representative of the mine workers on that commission, on the ground that it sought to incorporate the entire evidence and argument of the mine workers as presented to the commission. The President declared the publication of such evidence at governmental expense was unusual and not in accord with customary juridical practice. However, nothing would prevent the mine workers from publishing their argument at their own expense.

Award Adds $85,000,000 to Miners' Pay

The President declares, however, that the commission exceeded its authority in making the $18,000,000 of back pay which it awarded spread over a long period of time, urging, doubtless with justice, that it did not form part of the matters submitted. The payments were to begin Sept. 30. The amount of the award will add about $85,000,000 a year to the earnings of the mine workers.

The Anthracite Coal Commission made two reports to the President as to its findings—a majority and a minority report. The award of the majority, consisting of Dr. W. O. Thompson and W. L. Connell, has already been published, but the minority report is still unknown. The miners are given an increase of 17 per cent in wages, dating back to April 1, and practically all their other demands were denied, with the exception that a partial recognition of the union is granted, that the contract system of mining is to be referred to the Anthracite Board of Conciliation, and that certain classes of long-hour men are placed on an eight-hour basis.

On Saturday night, Aug. 28, after a stormy session lasting till late in the night, a meeting representing one hundred locals in the Wyoming Valley and called by the insurgent leaders, and not by the regular union officials, sent a protest to President Wilson, urging the acceptance of the minority report of the commission and "wishing an answer on or before Sept. 1, 1920; otherwise all men will refrain from work."

Miners Long on Demands But Not on Honor

It would seem as if the mine workers have no sense of honor, for no sooner have they made an agreement than they proceed to break it when they find the keeping of it seems likely to be to their disadvantage. During the sessions of the commission threats of a strike if the decision was not as favorable as desired were made by Thomas Kennedy, the rest of the mine workers' leaders appearing to be in agreement, for they remained silent.

For the last two months there has been much unrest in the anthracite-coal field, strike after strike has been declared and practically all the companies have had trouble of this nature. The worst of these strikes has been the one against the Pennsylvania Coal Co., which has already lasted for about two months, tying up its mines almost completely. This strike was called so that the coal commission might feel compelled to decide against the continuance of the contract system, a plan of operation which the mine workers in their demands sought to have abolished. The Hudson Coal Co. has had a couple of small strikes in the same period. Others have suspended the operations of the Lehigh Valley Coal Co., the Susquehanna Collieries Co. and other companies.

The idea of selecting a representative from the labor side and one from the operators' side in these controversies seems to be radically wrong, as immediately an opening is made for a further dispute. It is almost certain that with this arrangement there will be a majority and minority report made. When the minority report is filed by the miners' representative the whole body of the labor involved feels that this is the report that should be adopted, no matter what the majority may decide. Why not have the three men who are appointed persons who are not directly interested in the issue? In our law courts the plaintiff and the defendant are without representation on the bench. Why, then, should the parties involved in these disputes have their partisans on the commission? But if it is thought necessary to appoint such representatives on the commission why not let them act as advisers to that body and not as commissioners?

Powers of the Commission Are Limited

What good is a commission that cannot enforce its demands? If the commission reaches a decision what is there to prevent the miners from refusing to abide by its decision, except their agreement, which is valueless? At law, if the court gives a decision it has the authority to enforce it.

It is to be hoped that the conservative leaders of the United Mine Workers will control the situation, although they have been unable to do so in regard to the Pennsylvania Coal Co. strike. There is no doubt that there are a number of the leaders who have the high sense of honor necessary to stand directly behind the award of the Anthracite Coal Commission although it does not meet their approval.

If a strike should be called in the anthracite-coal fields after the decision of the commission is made official, it then means the doom of collective bargaining

and a possible fight to a finish between the miners and the operators.

The award under Demand 2 is as follows:

(A) The contract rates at each colliery shall be increased 65 per cent over and above the contract rates at each colliery, effective April, 1916, as established under the agreement of May 5, 1916.

(B) The hourly rates of outside and inside company men receiving $1.54½ or more per day under the agreement of May 5, 1916, shall be increased 17 per cent, said increase to be applied to the total rate now in effect, namely, the base rate established under the agreement of May 5, 1916, plus the war allowance granted under the supplemental agreement of Nov. 15, 1918; it being understood that the new rate so established shall be not less than 52½c. per hour for those employed upon the basic eight-hour day. In the case of company men employed upon the shift basis, the shift rate shall be increased 17 per cent, said increase to be applied to the rate now in effect, it being understood that the new rate so established shall be not less than $4.20 per shift.

RAISE OF 4C. AN HOUR TO LOW-PAY MEN

(C) The hourly rates of outside and inside employees receiving less than $1.54½ per day under the agreement of May 5, 1916, shall be increased 4c. per hour over the rates now in effect, namely, the base rate established under the agreement of May 5, 1916, plus the war allowance granted under the supplemental agreement of Nov. 15, 1918.

(D) The rates paid consideration miners shall be increased 17 per cent, said increase to be applied to the total rate now in effect, namely, the base rates established under the agreement of May 5, 1916, plus the war allowance granted under the supplemental agreement of Nov. 15, 1918.

(E) The rates paid contract miners' laborers and consideration miners' laborers shall be increased above the rates established under the agreement of May 5, 1916, to the same amount per day as the increase to company laborers, at the respective collieries, under the provisions of clause B hereof, it being understood that in the case of contract miners' laborers the miner is to assume and pay so much of said increase as shall be represented by the application of 65 per cent to the rate per basic shift, as established under the agreement of May 5, 1916, and the difference between said amount and the total increase to the contract miners' laborer shall be assumed and paid by the operator.

(F) Monthly men coming under the agreement of May 5, 1916, shall be paid an increase of 17 per cent, said increase to be applied to the total rate now in effect, namely, the base rate established under the agreement of May 5, 1916, plus $54 per calendar month in the case of outside employees, and the base rate under said agreement plus $60 per calendar month in the case of inside employees.

(G) The increases herein provided shall become effective April 1, 1920 [and the amount due for the period April 1 to Aug. 31, 1920, shall be paid as follows: The amount due for April with the pay for the first half of September, and the amount due for each of the succeeding four months with the pay for each semi-monthly pay period thereafter.]

The bracketed provision is stricken out as being *ultra vires*.

Other decisions are that the back pay of all employees who have died since April 1, 1920, be paid to the legal representative of each of the employees in question and that the contract be for two years. The commission denies the demand that individual contracts and agreements be prohibited, holding the right of contract cannot be denied, but provides for the Board of Conciliation reviewing such contract upon complaint of any employee. The demand for a uniform wage scale is referred to the Board of Conciliation to act as a commission to make a study of and report to the next joint conference, or sooner if practicable.

VARIED COLLECTION OF DEMANDS DENIED

The following demands were denied, namely: That shovel crews operating for coal companies be paid not less than the prices paid by contractors to shovel men; that time and half shall be paid for overtime and double time for Sunday; that the "closed shop" and "check-off" be granted; that all deadwork shall be paid for on a consideration basis and that where more than one miner is employed all the men shall receive the same rates; that payment be made for all sheet iron, props, timber, firepoling and cribbing; that where miners are prevented from working on account of lack of supplies they shall be accorded the opportunity of making a shift at some other work (this demand was withdrawn by Commissioner Ferry); that in the settlement of grievances the aggrieved parties shall have the right to demand settlement upon the basis of equity; that payment be made for refuse of all kinds in mining up to 10 ft. wide at a uniform rate of 17c. per inch; that payment be made on a consideration basis and dockage be eliminated; that on all reel motors one motorman and two brakemen be employed and that when motormen as engineers are repairing motors or engines their assistants be employed to help in the work; that where contract miners are employed doing company work the company shall furnish them with the necessary tools, and failing to do so shall compensate the miner for the use of the tools; that the company shall furnish tools to company men; that check-weighmen and check docking bosses be allowed to serve on committees.

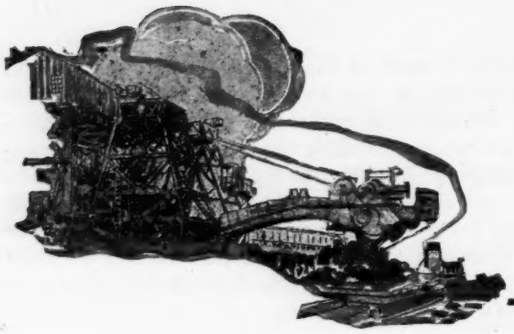
The demands granted outside of those in Demand No. 2 include recognition of the union as a party to the contract and payment for tools lost as a result of squeezes, water or fire.

Lake Coal Movement Gaining

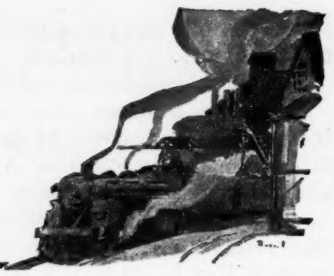
CUMULATIVE Lake movement from the beginning of navigation to Aug. 21 stands at 9,731,000 tons as against 15,727,000 and 15,505,000 tons to the end of the corresponding weeks of 1918 and 1919. The year 1920 is therefore six million tons behind 1918 and five and three-quarter million behind 1919.

Shipments from the mines to Lake destinations under Service Order No. 10 during the week of Aug. 21 were 2,230 cars short of the quota of 23,580 cars. On Aug. 21 the cumulative movement was 10,742 cars in arrears, or, in other words, it was about 2.7 days behind.

Shipments on both Monday and Tuesday, Aug. 23 and 24, exceeded the quota and reduced the cumulative arrears to 10,172 cars. So heavy has been the movement under Order No. 10 that difficulty is now reported in unloading promptly all the cars shipped to the Lakes. On Wednesday, Aug. 25, according to reports furnished the American Railroad Association, there were on hand at lower Lake ports 10,404 cars of coal.



Production and the Market



Weekly Review

Production Declines — Car Situation Is Practically Unchanged — Prices Distinctly Lower — Lake Dumpings Are Heaviest of Season—New England Movement Heavy—Anthracite Labor Disaffection Grows

THERE was a sharp decline in the production of bituminous coal for the week ended Aug. 21 Figures of the Geological Survey estimate the tonnage at 10,981,000, a decrease of 833,000 tons, or 7.1 per cent, when compared with the preceding week. A fresh outbreak of the daymen's strike in Indiana caused the decline, as the end of the week saw 80 per cent of the mines in that state closed. Anthracite production also decreased sharply, output for the week amounting to 1,595,000 net tons, as compared with 1,801,000 tons for the second week of August. Beehive coke output was 423,000 net tons, an increase of 1 per cent.

The Midwest reports firm prices, which are attributed to buying activity in the erstwhile strike zone. Elsewhere a much improved showing has been made in stock accumulations, resulting in a lessening of demand and lowering of price. Late improvements in car supply and movements also have tended to reduce prices.

The retail and anthracite shortages continue. The President has approved the majority report of the Anthracite Wage Commission, which awards 17 to 20 per cent increase in pay. An ultimatum sent him by 300 delegates of locals in District 1 demanding that the minority report be approved, under threat of strike, has been accepted as a challenge.

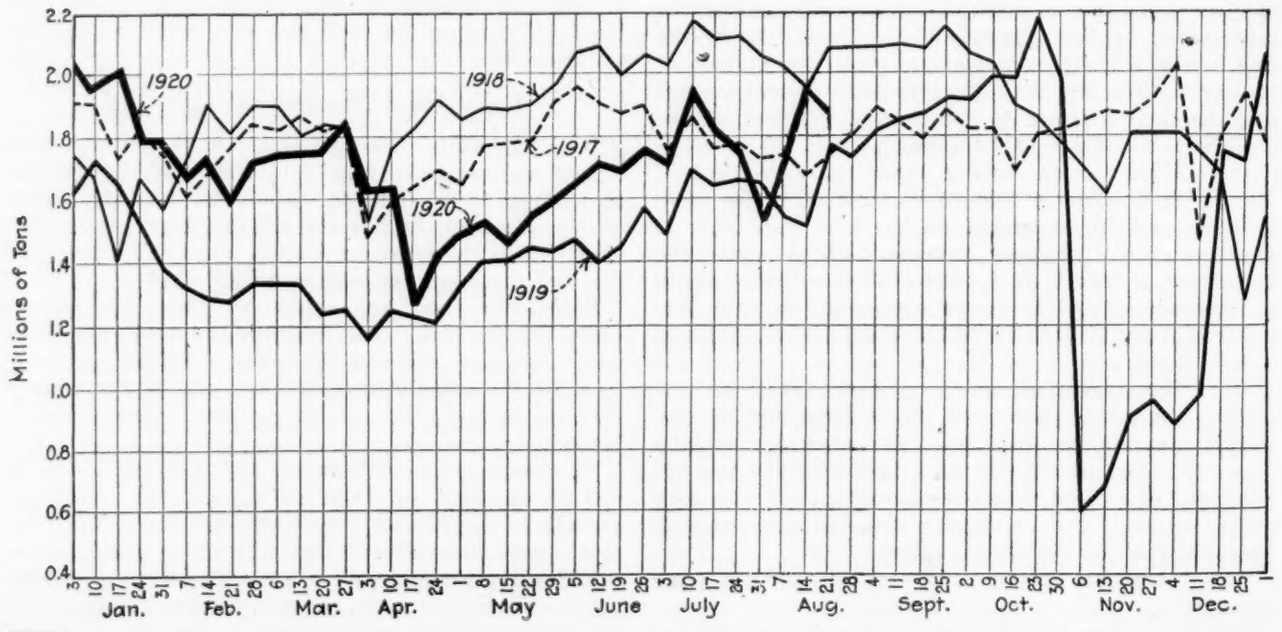
Rail movement to New England has recovered, 5,369 cars having been forwarded in the third week of August, while tide shipments to New England are again on the increase. Congestion at Baltimore and Philadelphia piers slowed up loadings to some extent.

Preliminary figures for week ended Aug. 28 show Lake dumpings of 1,262,868 tons as compared with 1,090,000 tons for the preceding week. This exceeds the corresponding week in 1919 by some 560,000 tons.

Lake Coal Dumped Week Ended Aug. 28
(NET TONS)

	Cargo	Fuel	Total
1919.....	671,042	30,867	701,909
1920.....	1,220,231	42,637	1,262,868

Average Daily Production of Bituminous Coal*



*From weekly report of Geological Survey.

Reports From the Market Centers

New England

BOSTON

Prices Recede — Tide Receipts Heavy While All-Rail Tonnage Declines—Demand Is Much Lighter — Anthracite Demand Very Strong — Retail Prices Are Advanced.

Bituminous—The extent to which the market has fallen off can be measured from day to day by quotations on spot coal. Pool 11 grades were offered at $9.50 as compared with $10.75 a week earlier. The only traffic restriction now in effect is an embargo against coal moving via West Albany for B. & M. and N. Y. N. H. & H. destinations. Prices down to $7 at the mines have been rumored on coal for shipment via Tidewater but such offers seem to meet with little or no response.

There is almost an entire lack of buying interest, and even the railroads are taking the market very easily. There have been a great many curtailments in manufacturing and very few large plants have less than 75@90 days stock of fuel on hand. In most cases these consumers have contract coal due them all-rail at prices that readily account for their indifference to current prices.

There is not quite the same rush of coal through the Hudson River gateways but the movement continues very heavy and is not likely to decline much farther during the next 60 days. A considerable tonnage is coming through in assigned cars but receipts are not expected to drop off materially even when Order 9 expires. The latter has helped break the spot market, but there is doubt here whether it has really increased the flow of coal. In most cases it has allowed operators to make special trades at prices well below the spot level, but still above contract figures, and contract deliveries have suffered severely.

Hampton Roads dispatch is excellent. The volume moving coastwise was enough improved to allow distributors to make 100 per cent deliveries on contract the latter part of August.

Current quotations on bituminous at wholesale range about as follows:

	Clearfields	Cambrias and Somersets
F.o.b. mines, net tons	$9.00@$10.00	$9.75@$11.00
Fo.b. Philadelphia, gross tons	12.00@ 13.75	13.10@ 14.60
F.o.b. New York, gross tons	12.50@ 14.25	13.50@ 15.25

Anthracite—The same insistent demand for domestic sizes continues. New York shipments have been fairly constant but at Philadelphia the service has been handicapped by the undue volume of bituminous sent to piers. For the time being, anthracite has been crowded out and clearances for New England have been very light.

The Boston retail dealers advanced prices on Aug. 26 from $14.50@$16 per net ton. This is the first advance since April 1 and is not wholly due to the recent railroad advance. It covers the increased miners' wages in May and also the usual monthly advances that have been made effectively since then.

Tidewater

NEW YORK

Situation Helped by Resumption of Towing — Supplies Are Short but No Fear of Shortage—New Prices, Due to Increased Freight Rates, Not Yet Announced — Steam Coal Situation Is Strong.

Anthracite—Even with more coal coming into this territory from the lower ports the retail yards hold small stocks and the first of the fall season finds the dealers with many unfilled orders on their books. Dealers are anxious to have their orders filled so they will be better prepared to take care of the rush which comes with cold weather.

With towing from Port Reading almost normal, and the other ports, with the exception of one of the upper ports, handling heavy tonnages, the situation is greatly improved.

The increased freight rates make the rate to New York Tidewater from the mining regions $2.61 for domestic coals and $2.47 for pea and smaller sizes, an increase of 76c and 72c respectively.

There is a steady demand for anthracite, with the two larger sizes the strongest. Retail dealers have not yet made any announcement regarding changes in price because of the new freight rate.

The independents are still able to market their product without difficulty. There is no easing up in the steam coal situation. Demand is strong and offerings firm. Barley continues to be the easiest of the three sizes. The lack of bituminous tends to stimulate the call for buckwheat.

Independent buckwheat is being quoted as high as $5.75, f.o.b. mines; rice $3.75@$4.25 and barley from $2.25 @$2.75. A quotation of $5 alongside for a cargo of barley was heard the latter part of the week.

Quotations during August for company coals, per gross tons, at the mine and f.o.b. New York Tidewater, lower ports are as follows:

	Mine	Tidewater
Broken	$7.50@$7.65	$10.11@$10.26
Egg	7.50@ 7.65	10.11@ 10.26
Stove	7.75@ 8.00	10.36@ 10.61
Chestnut	7.80@ 8.00	10.41@ 10.61
Pea	6.05@ 6.45	8.52@ 8.92
Buckwheat	4.00@ 4.10	6.47@ 6.57
Rice	3.00@ 3.50	5.47@ 5.97
Barley	2.25@ 2.50	4.72@ 4.97
Boiler	2.50	4.97

Bituminous—The market shows evidence of further softening. Prices are easier and an improved car supply has increased shipments. Towing difficulties having been removed, water transportation rates within harbor limits have become normal, namely about 50c.

Quotations on the different coals varied as much as $1 per ton. Pool 10 was quoted from $9@$10 at the mines, and around $16.50 alongside. Pool 11 around $16 alongside, while the quotations on Pools 9 and 71 ranged from $17@$17.25 alongside. For Pool 11 mine quotations ranged from $8.50@$9. Pool 18 at the piers for New England shipment was quoted around $14. Pool 34 gas coal was in demand with quotations ranging from $14.25@$15.25.

PHILADELPHIA

Freight Rate Increase Added to Anthracite Prices — Stocks Are Still Inadequate — Embargoes Curtail Receipts

Anthracite—With the increase in freight rates which became effective on Aug. 26 retailers began to announce adjusted price schedules to cover. On egg, stove and nut the increase amounted to 80c@$1.

It cannot be said there is any uniformity as to retail figures, as many of the dealers have constantly been making adjustments to meet their increasing overhead. The bulk of the company tonnage that is being moved is sold at about the following figures: Egg $14.55; stove, nut $14.80; pea $12.

The Philadelphia & Reading dealers are still extremely short of all sizes, an embargo still being in force to central city dealers. Probably the trade on the Port Richmond branch is in the worst condition, as this line is loaded down with shipments of all kinds going to Tide.

Bituminous—The very slow but gradually settling down of prices began three weeks ago and is still going on. Recently Pennsylvania steam coals were to be had at prices from $10.75@ $11 at mines for Pool 10 coal. Pool 11 ran from $10@$10.75 at mines, with Pool 9 at $11.75 as a top-notch figure.

Practically all sales are being made for shipment from the mines, as there is very little coal that can be transferred, especially in view of the regulations covering this feature. The rail movement is far from satisfactory, although the Penn. R.R. is making a good showing in this respect. Latest report from the B. & O. R.R. is that conditions have improved, with removal of embargo restrictions.

That sellers are once more offering coal from pools is another indication

that the market is approaching some form of old time regularity. The grades are once more re-grouping themselves, even though it be slightly. Ordinarily Fairmont gas rules below the Pennsylvania coals, but for a while recently they topped the market. However, this week there was a decided lowering in prices, with offerings of Fairmont at $9@$9.50 at mines. At the same time Pennsylvania gas coals were running from $10.75@$11.25 at mines.

The car suppply is improving slowly. In some of the important industrial lines business is still far from being satisfactory and if it were not for these concerns taking in much coal for storage, there would be a greater tonnage for the open market.

BALTIMORE

Bituminous Market Is Weaker—Export Loadings Are Heavy — Bunker Costs Drop—Conditions at Tide Are Clearing—Anthracite Retail Prices Advance About $1.75.

Bituminous—The soft coal market here has weakened, especially on the Baltimore & Ohio R.R. Connections for line delivery. The Department of Justice has claimed that this break is due to talk of prosecutions, but coal men point to the start of break before the move was made and the fact that a better run of cars, curbing of speculation in repeated turn-over of coal by railroad shipment orders, and the increasing production as the true causes.

Coal is selling at the mines at $9.50 @$10 a net ton for best fuels on the B. & O. R.R. Similar coals on the Pennsylvania R.R. delivery connections are selling on a mine basis of $11@$13. A few sales to the trade of Pool 10 coals at $9.25 or thereabouts have been noted, but this is the low of the present market. The only sales at lower figures are of the Service Order 11 coal, which is a government-order obligation, and over which there is much controversy. Some of the purchasing agents for New England concerns are offering only a price which would mean less than $6 per net ton at the mines, and relying on the fact that considerable priority coal is now under way to force such sales in the near future. The present market conditions are due in part to the fact that consumers are showing no eagerness to take more than immediate needs at the ruling prices. Bunker coal costs have dropped somewhat, and sales of No. 11 coal have been made down to $16, No. 9 at $17, gross at the piers. The fact that shippers must now designate vessels before coal is allowed to move from mines has cut out the speculative turn-over of the market, and there is little excitement in the buying at Tide.

Congestion at the piers is being relieved, and at present there are only about 2,000 cars on reserve here at tide, with about 30 ships waiting astream for about 150,000 tons of coal. About 400 cars a day are being dumped from B. & O. and Western Maryland cars at the B. & O. piers here, and the export movement continues heavy. For the first 25 days of August the export cargo loading reached about 420,000 tons, with about 40,000 tons additional taken by the same ships in bunkers. This is far in excess of July figures.

Anthracite—Retail prices have been advanced, the raise being about $1.75 a ton. The change has placed stove and chestnut on the same price basis, the idea being to increase sales of chestnut as the principal demand has been for stove and this has been hard to get. The new schedule is as follows: Hard white ash, No. 1, broken and No. 2, egg, $15.50; No. 3, stove and No. 4, chestnut, $15.75; pea coal, $13 and Buckwheat, $10. Sunbury, No. 2, $15.50; No. 3 and No. 4, $15.75. Lykens Valley, No. 2, $16.50; No. 3 and No. 4, $16.75.

Lake

CLEVELAND

Labor Troubles Lower Production—Industrial Stocks Gain, but Retail Trade Is Short—Prices Are Firm—Pomerene Protests Order 10.

Bituminous—The deadlock reached between operators and union heads at the recent Cleveland conference had an unfavorable effect upon mine labor. Incipient and intermittent strikes and general dissatisfaction prevail in the coal regions. No general strike is anticipated, but production is expected to decrease unless some settlement is reached soon. Under the plan for state conferences, the Ohio union has announced its intention to invite Ohio operators into conference. The operators have intimated that they would negotiate on the matter of inequalities in wages.

Mine operation dropped to 68 per cent for the week ended Aug. 21. Although consumers in Cleveland and surrounding cities are still protesting Order 10, operators say that industrial users are getting more coal under this order than before, due to the fact that industries use the resultant slack from Lake coal.

Lake Trade—The 1,000,000-ton mark for Lake shipments was reached last week. At the rate coal is being sent forward the loss in shipments on Sept. 1 will be less than 5,000,000 tons, as compared with last season.

Retail prices delivered in Cleveland are: Anthracite — egg and grate, $13.75; chestnut and stove, $14; Pocahontas—shoveled lump, $12; mine-run, $11. Domestic bituminous—West Virginia splint, $11; No. 8, $10.50; Millfield lump, $13.50; Cannell lump, $14.50. Steam coal—No. 6 and No. 8 slack, $10.50@$11; No. 6 and No. 8 mine-run, $13@$13.50; No. 8 ¾-in. lump, $10.50@$11.

BUFFALO

Prices Decline Slowly — Demand Is Light — Consumers' Stocks Are Gaining—Anthracite Shortage Continues—Prices Are Firm.

Bituminous—The slow decline in prices goes on. Shippers are looking for an early though gradual decline. They are now quoting about $9.50 mine price, which is a decline of about $2.50 from the highest figures. There is nothing like uniformity in prices. A great part of the coal is moving at $4, mine price, while there are still reports of sales at $12.

Cars are not plentiful, but it is agreed now that the labor situation is the most serious of anything in the trade. The mines that obtained labor by offering big wages have reaped a harvest, but they have beaten the trade in a still worse way by increasing the cost of mining.

The real demand for coal is light. Consumers apparently have a supply and are not eager to pay as much for their present needs as they paid for their stocks. A matter of 70c. has been added to the cost of coal by the new freight rates. Buyers seem to look for a decline in the mine price soon that will at least neutralize this increase.

Anthracite—The complaint of shortage continues. However, the amount already stored for city trade here is large and any real shortage can be made up in a short time, as always is done when the Lakes close. The Lake shipments are still short. Reports show that cargoes go out as fast as coal is received, so that it is hard to estimate the actual supply.

The standard price will have to be called low, but there are people still buying independent anthracite, some of which brings a premium of $5 and even more.

Lake—Shipments by Lake for the week were 89,400 net tons, of which 47,200 tons cleared for Milwaukee, 19,000 tons for Chicago, 14,200 tons for Duluth and Superior, 6,000 tons for Sheboygan and 3,000 tons for Racine.

Coke—The prices have declined, along with bituminous coal, jobbers now quoting only $18.50 for 72-hour Connellsville foundry and $14.50 for off-grades. A little domestic size is offered here at $10.50, f.o.b. Buffalo, as it has to compete with anthracite. To the commercial price must be added hereafter $3.64 freight, which includes the recent 40 per cent increase.

Inland West

ST. LOUIS

Car Shortage Growing Acute — Scattered Labor Troubles Continue — General Shortage Begins To Assume Serious Proportions in Territory West of River—Domestic Situation Is Growing Serious—No Immediate Relief in Sight.

The steam situation in St. Louis proper is fairly good, but stocks are on a day to day basis, with the exception of a few big plants and public utilities.

In the country the steam condition is a serious proposition. Many public utility plants are trying to secure wood and are giving limited service, and manufacturing plants as well as metal mines are idle. There is nothing to in-

dicate that the situation will get better under present prevailing conditions.

Domestic coal in St. Louis has been taken care of to the extent of 80 per cent in the apartments and about 40 per cent among other householders.

Coal continues to move to Canada, Detroit and points East from the Standard field at prices ranging from $6.50@$8. The greater portion of this coal is for steam purposes.

One reason for the shortage of equipment at the mines in the Illinois field is that the cars are sent to points so far away that when empty they are sent to other and nearer fields. Shortage beyond description is likely to occur in the Middlewest unless the Interstate Commerce Commission orders the return of empties.

In the Standard field the mines work from 1 to 2 days a week on commercial and are getting as high as 5 and 6 days on railroad fuel, with the result that the miners are leaving the commercial mines and going to railroad operations. Standard coal for the St. Louis market is selling at from $3.50@$4.50. Prices of $7 and $8 are asked on all sizes.

The Mt. Olive field is getting about 4 days working time with a heavy railroad tonnage. The price on the Mt. Olive coal ranges from $3.50@$4 and is going to contracts and old customers.

A little Carterville continues to move in and the price ranges from $4.50@$5 when shipped by the larger operators. The independents are getting as high as $7@$8.

In the Duquoin field mine contracts and old orders are being side-tracked and prices of $7@$8 are asked on all sizes, with working time about 3 days per week.

In the Carterville field the Burlington and Chicago and Eastern Illinois railroads have the most equipment. The Illinois Central and Missouri Pacific roads are in bad shape and the Missouri Pacific R.R. continues to be short of railroad fuel.

Labor troubles are at a minimum in this district, but at a scattered point or two in the Standard and one large mine in the Mt. Olive field are idle over the wage question of the day-men.

Retail prices are: Carterville $9, Mt. Olive $7@$7.50, Standard $6.25@$7, for all sizes.

The St. Louis Emergency Fuel Committee met with the retailers of East St. Louis, St. Louis and St. Louis County and completed a survey of the coal shortage in the city. It is likely that the intention of sending a committee to Washington may result in bringing about restrictions on equipment that will afford the St. Louis territory some relief.

COLUMBUS

Better Car Supply in All Districts—Lake Trade Is Rather Active—Outlook Is Much Improved — Prices Continue Strong.

Production in all districts has improved under the influence of a better car supply. On the Hocking Valley Ry. the supply early in the week was almost 100 per cent. On the Toledo & Ohio Central R.R. the supply was better, although not up to that on the Hocking. The result was a run of approximately 75 to 80 per cent. Eastern Ohio is credited with about 65 per cent supply which is a marked improvement. Cambridge and Crooksville had about 70 to 75 per cent supply while Pomeroy had a run of 80 per cent.

After supplying the priorities dealers have been getting some tonnage and the same is true of steam users: But the supply is still inadequate to the need and prevents the storing of any reserve stocks. However, only a few factories have been compelled to close for want of fuel.

Retailers are delivering a larger amount of fuel. Prices are still strong at the higher levels which have prevailed for some time although there is slight weakness noted in certain sections. A fair amount of West Virginia grades is arriving and Hocking and Pomeroy Bend are called upon to supply the major portion for domestic use. Hocking lump sells from $8.50@$10.000 and West Virginia splints from $9.50@$11. Pocahontas when obtainable retails from $10.50@$11.50.

The advanced freight rates are expected to have some influence on prices, but it is still too early to see just what the effect will be. An increase of 40 cents from the Hocking Valley will undoubtedly be reflected upon the price, as will be the increase of 66 cents from the Kanawha field.

The Lake trade is rather active and a larger tonnage is moving to the Northwest. During the week ending Aug. 21 the H. V. docks at Toledo loaded 203,036 tons, which is the largest week of the season. These docks have loaded 750,328 tons since the opening of navigation.

Prices paid at the mines for the principal coals used in central Ohio are:

Hocking lump	$5.50@$8.00
Hocking mine-run	5.50@ 8.00
Hocking screenings	5.00@ 7.75
West Virginia splints, lump	6.50@ 9.00
West Virginia splints, mine-run	6.25@ 8.75
West Virginia splints, screenings	6.25@ 8.75
Pomeroy lump	7.00@ 9.00
Pomeroy mine-run	6.50@ 8.50
Pomeroy screenings	6.50@ 8.50
Pocahontas lump	8.00@ 9.50

CINCINNATI

Prices Have Advanced — Stocks Are Ample — Progress Made in Car Supply — Coal Men Ordered To Produce Books by Kentucky Judge.

Coal companies receiving their fuel by boat have not increased prices, since the new freight rates do not affect shipments. Net increase in the coal freight rate from the West Virginia mines to Cincinnati is 61c. per ton and on anthracite is $1.73 per ton.

Cincinnati continues to have an ample supply of coal on hand. There are no complaints from industries and public utilities and the householders continue to store fuel away for the winter.

Operators feel optimistic over the progress made in supplying cars to the mines. The situation, while it still can be a great deal more improved, should come around in fine shape.

There is no feeling of apprehension in this section of a coal shortage next winter. There continues a healthy demand for all kinds of coal, with a shortage reported in smokeless lump for household purposes.

Coal men this past week have been watching with interest the action of United States Judge Cochran at Covington, Ky., who has ordered Kentucky operators and dealers to produce their books before the grand jury which is investigating alleged charges of profiteering.

Retail prices were advanced during the week. Smokeless run-of-mine was 50c.@$1 higher, at $9 and $10. Bituminous lump, formerly quoted at $8.50@$9.25, was put up to $8.50@$9.50 a ton. Smokeless lump and egg was $10@$10.50 a ton, against $9.50@$10.50. Coke was 50c.@$1 higher, at $14@$14.50 a ton.

CHICAGO

Market Is Unsettled—Strong Demand Maintains Prices—Transportation System Is Much Improved.

The Chicago coal market is very spotty indeed. Some of the Franklin County operators have raised prices to their trade. One firm is selling Franklin County prepared coal through its regular channels on the basis of $5.50 f.o.b. mines. This is about a dollar higher than price asked by other Franklin County operators. Southern Illinois open-market prices are very much higher.

There has been a decided change for the better in the freight traffic situation. A decided improvement has also been noticed in the time in transit of coal from the mines through to destination. There has been a very noticeable decrease in the number of cars coming to Chicago to be reconsigned and this naturally has some effect on the speeding up of the transportation situation.

Eastern coals are coming into the Chicago market in greater volumes than expected, although to get eastern coal it is up to local purchasers to meet export offers. Pocahontas coals are selling at retail from 12@$15, while anthracite is bringing anywhere from $15.50@$23 per ton.

The public is still buying heavily and with the supply limited as it is, the present high costs probably will be maintained.

DETROIT

Responsibility for High Prices Is Attributed to Competition of Industrial Consumers — Investigation of Alleged Unreasonable Charges Is in Prospect—Retail Situation Is Worse.

Bituminous—Replying to statements of retail dealers and jobbers placing blame for high coal prices on the producers, representatives of the latter in Detroit make a direct denial, claiming that various manufacturers have been

hogging the market. When they have satisfied themselves, possibly the retailer will have a chance to come in and buy coal to take care of the householder. The retailer has been up against it because of this bidding in the open market which big firms could afford to do.

In accordance with instructions from Washington, the United States District Attorney in Detroit has instituted an investigation of conditions, which is expected to take in the operations of "scalpers" who are reported to be buying the available output of various mines, reselling the coal at a considerable advance.

There is not very much coal moving into Detroit at present. Shipments are little more than adequate to supply the needs of industrial consumers for present use and retail dealers have been able to get very little stock.

Anthracite—While a small amount of anthracite is reported coming to some of the local dealers, the quantity is so small as to give no basis for confidence for the winter supply. Most of the retailers have been able to supply only a small proportion of their customers, and those not yet able to get coal view the outlook with much apprehension.

Lake Trade—Shipments of coal over the Lake routes are steadily increasing. Dumpings are nearly up to scheduled rate provided for in recent priority order.

MIDWEST REVIEW

Mines Resuming Operations Satisfactorily—Prices Have Wide Range—Demand Is Strong.

The difficulties with mine labor in the Middlewest have been settled, temporarily at least. Early last week, the men began going back to work; both in Illinois and Indiana. On Aug. 25, practically all of the larger mines were working.

The day men in the Illinois and Indiana mines will receive $1.50 per day increase bringing the scale up to $7.50 for 8 hours' work. This increase eliminates the differential between the earnings of the coal diggers and the day men in the thick-vein fields of the two states, and gives the day men greater pay than the coal digger in the thin-vein sections of Illinois. This is obviously unjust and there is a commission now at work composed of both miners and operators who will investigate the situation and make a report very shortly.

The demand for coal in the Middlewest is now just as heavy as it ever has been and the market prices on all grades are reported very erratic.

It is expected that the market will soon become more settled and more uniform prices will prevail.

The increase in freight rates, which became effective a few days ago, had but little actual bearing on the market. Practically all operators and wholesalers have as much business booked as they can possibly take care of, so those buyers rushing into the market at the last minute, in the hope of purchasing coal and getting it shipped before the increase in freight, were unable to place many orders.

If the car supply continues good, the market should ease up to more reasonable levels, but if the car supply continues tight, there will be no let-up in the demand and no reduction in the present current prices. Prices f.o.b. mines are as follows:

Franklin County and Southern Illinois prepared coals, from $4.75@$8.50.

Springfield District, from $6.25@$8.50.

Northern Illinois thin vein coal, from $5.75@$7.50.

Clinton Fourth Vein, from Indiana, from $4.50@$8.

Indiana Fifth Vein, from $4.25@$7.25.

South

LOUISVILLE

Priority Coal Declines—Spot Market Strong—Car Supply Not Materially Improved—Retail Situation Is Serious—Eastern Kentucky Operators and Jobbers Indicted.

Although Attorney General Palmer is being credited for slumps in Eastern and Northern market prices, leading coal men of the Louisville district claim that the slumps are due to better production, and drop in export demand.

There has not been much slump in prices south of the Ohio River, but as a result of increased rail rates to Tidewater, increased ocean rates and high prices in the fields, export demand has dropped.

Coal on priority for public utilities has dropped to $6@$7 a ton at the mine. Such mines are assured a full car supply, and can operate at a lower cost, this adding to costs of operators without assigned cars. This has resulted in open market buyers bidding against each other for coal, with the result that the spot market on gas coal has been around $11@$12.

Up to Aug. 21 car supply on the Louisville & Nashville R.R. in Eastern Kentucky was a fraction under 33 per cent, and on the Southern R.R. 20 to 25 per cent. Strikes in Eastern Kentucky have not been at all general, and have not affected prices or production as a whole, as operating mines have been in position to take all cars of mines closed by strikes.

Quotations for Eastern Kentucky mine run show gas coal to be selling at around $10@$11 a ton; non-gas and steam, $9.50@$10.50.

Operators claim that in view of car shortage and holding of cars necessary in making prepared sizes there is not much prospect of Kentucky mines screening domestic in the Eastern section of the state this fall.

Retailers are reporting heavy orders to be filled as coal is supplied, on basis of market price at time of delivery. One retailer stated that it would take months to fill orders now on hand unless a full supply of coal is available. Late orders are being taken subject to delivery after earlier orders are filled, but under agreement that in event of actual need all orders will be scaled down to one load at a time, regardless of amount of order. Retailers have been unable to place orders to much more than take care of steam customers.

Many jobbers and operators in Eastern Kentucky have been ordered to produce their books and records to the Federal grand jury at Covington, Ky. The list under indictment includes many in the Harlan, Hazard, and Bell County districts.

BIRMINGHAM

Market Shows Great Strength, but Coal Supply Has Not Materially Improved—Car Shortage More Acute—Labor Conditions Approach Normal.

Car supply was miserably poor on the Southern Ry., only 25 per cent supply being furnished. The Louisville & Nashville R.R., has had plenty of cars for coal carrying and mines have received 100 per cent supply. The Frisco has probably supplied 70 per cent of the cars needed in the fields it serves.

The railroads, as well as other classes of consumers, are very short on fuel supply and some coal is being confiscated. Deliveries are slow and irregular, but industries and utilities are managing to keep going without serious difficulty. Perhaps 90 per cent of the coal mined is being applied against contracts and orders which have been on hand for some time. The spot market is high at $8@$8.50 per net ton mines, most of such coal coming from small mines and wagon operations.

The inquiry for bunker and export coal is very strong and Alabama operators have a heavy tonnage of this business booked already. Due to transportation conditions and the poor facilities for unloading cars and barges at southern ports the progress being made in filling such orders is not altogether satisfactory and it is not expedient to take on further business at this time.

Much more coal is being produced in actual running time than a week ago where strikes have been hindering the output for some time. As a whole, production in the district is nearing normal tonnage obtainable under existing transportation conditions.

West

SAN FRANCISCO

Retail Coal Is Increased—Wholesale Quotations Are Unchanged.

The San Francisco Retail Coal Dealers' Association has announced an increase in the price of coal from $16.50 a ton to $18@$18.50. The increase is due to the new freight rate schedule, amounting to $1.50 a ton, and a raise in the price of coal at the mine of 50c., according to the announcement.

Bituminous coal, f.o.b. Utah and Wyoming mines, is still quoted at $5.

News From the Coal Fields

Northern Appalachian

CONNELLSVILLE

Car Supplies Are Unchanged—Market Prices Are Stiff — Production Rate Is Maintained.

Car supplies have shown practically no variations in the past two week. Furnacemen report that while time of coke in transit has been reduced it is still well above normal, and this would suggest that if the railroads get to moving cars at normal rates the cars now available will permit of heavier placements.

The spot coke market has shown remarkable stiffness. The improved car supply together with the reported withdrawal of some furnace interests, formerly insistent buyers, has not softened the market to any extent. Spot furnace coke was quotable at $18@$18.50, at its highest, with a leaning toward the $18.50, while the lowest price since made on really standard grade seems to be $17.50. At the present time the market is quotable a little stronger. Some coke has been secured recently at $17.50, but $18 is perhaps a more representative figure. An easier market tone is predicted by the fact that quality complaints are beginning to be heard. A critical market usually is the forerunner of a reduction in price.

As to foundry coke, there are slightly heavier offerings, and prices are unchanged, the only noticeable difference being that one can pick up slightly better quality at given prices. We quote spot coke at $17.50@$18 for furnace and at $19@$19.50 for foundry, per net ton at ovens.

The *Courier* reports coke production in the Connellsville and Lower Connellsville region in the week ended Aug. 21 at 219,060 tons, a decrease of 380 tons, compared with preceding week.

UNIONTOWN

Unexpected Car Shortage Maintains Price Levels — Poor Transportation Facilities Jam Yards — Buyers Await Adjustment — Labor Is Difficult To Handle.

An unexpected shortage in car supply has held prices up to the prevailing high quotations of the past two weeks. Due to the inability of shippers to furnish quotations for consignments originating late in the week, little fluctuation was recorded in the $8.50 coal and $18 coke figures.

From complaints over poor quality of coke and coal, consumers have passed to downright refusal to accept shipments. This necessarily indicates a market tone that can only be followed by falling prices. Nevertheless, there is yet no discernible tendency to weaken the figures at which offerings are made.

Removal of the $10 demurrage exacted on shipments not lifted after 48 hours has apparently had no effect on the situation, nor has the continued embargo on pier shipments. Wagon mine operations also can be disregarded in considering the situation.

As was expected, yards became crammed with loads, due to the extraordinary effort made to start consignments before the increased freight rates became effective. Youngwood carried more cars through the week than for many days and similar conditions were reported from Rainey. Car supply opened strong but fell off sharply after the big mid-week shipments had originated.

As present wholesalers are apparently awaiting an adjustment and producers are bending all effort to maintenance of their organizations. Labor is becoming more difficult to command and if a fair drop in price will stabilize the market for the fall and winter little opposition would be voiced on the part of the vendors of fuel supplies.

PITTSBURGH

Labor Troubles Feared—Car Supplies Increase — Market Is Easier — Shipments to Lakes Heavy.

Pittsburgh district coal operators continue to entertain fears of labor troubles and so far as this district is concerned the difficulty of the situation is increased by the advance given to daymen in Illinois and Indiana. It has been the common theory that any concessions made in other districts would produce unrest here. While some operators are in favor of compromise, many feel that it would be impolitic and against the public interest to grant any wage advances at this time.

Car supplies have continued to increase, but a serious shortage is still reported. The last two weeks reported upon showed 15 to 16 per cent labor shortage at river mines, with no transportation disability, while rail mines showed 38 to 40 per cent car shortage. Sufficient additions to car supplies would uncover a labor shortage at rail mines and it is only a guess whether the shortage would be greater or less than has been exhibited at the river mines.

With the Pennsylvania R.R. the situation has so improved that the road has discontinued its "entire production" order with respect to Lake shipments, and is back to the old system of rating cars for different points. Insufficient Lake transportation rather than inability to move coal to the Lakes may yet cause a shortage in the Northwest.

It is reported now that some steel plants have been rejecting shipments on account of quality, indicating that they are not as hard pressed as formerly.

Offerings of coal in the open market are heavier, partly by reason of greater production and also due to embargoes but there has been little additional decline. The embargo on the Philadelphia & Reading R.R. has shut out a great deal of gas coal from the East, although the Baltimore & Ohio R.R. is still taking some. The mine market is quotable at about $9 on an average, Pittsburgh district, with little distinction between steam, gas and by-product.

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

BITUMINOUS COAL

	1920		1920(a)	
	Week	Calendar Year to Date	Week	Calendar Year to Date
Aug. 7b	10,432,000	313,172,000	9,359,000	267,503,000
Daily average	1,739,000	1,678,000	1,560,000	1,434,000
Aug. 14b	11,814,000	324,986,000	9,092,000	276,595,000
Daily average	1,969,000	1,687,000	1,515,000	1,436,000
Aug. 21c	10,981,000	335,967,000	10,675,000	287,270,000
Daily average	1,830,000	1,692,000	1,779,000	1,446,000

ANTHRACITE

	1920		1919(a)	
	Week	Calendar Year to Date	Week	Calendar Year to Date
Aug. 7	1,756,000	52,317,000	1,870,000	49,177,000
Aug. 14	1,801,000	54,117,000	1,640,000	50,817,000
Aug. 21	1,595,000	55,712,000	1,862,000	52,678,000

BEEHIVE COKE

United States Total

Week Ended				
Aug. 21c	Aug. 14b	Aug. 23	1920	1919(a)
1920	1920	1919	to Date	to Date
423,000	418,000	415,000	13,634,000	12,381,000

(a) Less one day's production during New Year's week to equalize number of days covered for the two years. (b) Revised from last report. (c) Subject to revision.

FAIRMONT

Production Declines — Heavy Priority Shipments Cause Congestion, Lake and Tide — Restricted Distribution Areas Soften Price.

Less coal was produced during the third week of August than during either of the two preceding weeks. Total loadings during the period ending Aug. 21 approximated 5,100 cars. The shortage of cars which developed closed down 172 mines on the Monongah division of the Baltimore & Ohio R.R. at various times during the week and was undoubtedly due to growing congestion both at Tidewater and the Lakes.

The week was opened with a smaller supply of empties than at the beginning of the previous week and there was a decrease in supply each day. Not only a car shortage but a tendency among miners not to work quite so hard was a factor in reducing production.

The heavy flow of coal to the Lakes made it almost inevitable, in the opinion of coal operators, that it would be necessary to call a halt on Lake shipments until roads could unload the coal awaiting shipment by boats. While the shipments were continued up to the end of the week an embargo was looked for at almost any time. There was an embargo to Tidewater except for coal destined to New England. It was difficult to handle coal eastward owing to slow dumping at Curtis Bay, too free an issuance of permits and from other causes. The exporting of coal from northern West Virginia mines was practically at a standstill.

With many market outlets cut off, producers saw a softening of prices, although at the end of the week Lake delivery quotations strengthened somewhat. There continued to be, as in the previous week, heavy shipments of fuel for railroad consumption.

NORTHERN PAN HANDLE

Car Supply Improves — Lake Quota Leaves Practically No Free Coal — Prices Are Slightly Off.

Railroads serving the Northern Pan Handle region maintained a much better car supply during the week ending Aug. 21. However, owing to the fact that the Pennsylvania R.R. was behind with its quota, practically all coal loaded on that line was taken for Lakes.

The large Lake tonnage required under Order 10 left little coal available for purely commercial use and consequently made it difficult for mines to fully take care of all contract requirements. The rail movement was reported as satisfactory.

While production was slightly on the up-grade in the Northern Pan Handle, such was not the case in the eastern Ohio field, where only about 68 per cent car supply was afforded the mines, a decrease as compared with the previous week.

While price tendencies generally were downward yet there was no decided break in prices in the Northern Pan Handle so far as could be learned.

Middle Appalachian

KANAWHA

Production Slumps Further — Heavy Tide Shipments—Lake Quota Is Met—Prices Are Lower.

Production decreased further in the period ending Aug. 21, there being in consequence a reversion to transportation conditions obtaining during the greater part of July. There was a variation during the week of 50 per cent in the car supply, from a daily production of 24,000 tons for the first few days of the week on the Chesapeake & Ohio R.R., the output dropped to 12,000 tons on Thursday. On the Kanawha & Michigan R.R. the supply was equally poor, slumping to about 21 per cent by the end of the week.

It was an open week in the district for Tidewater shipments. This had a tendency to cut down western shipments and especially the movement to the Lakes, tonnage destined on Order 10 having met the requirements.

Prices were on a somewhat lower level than in preceding weeks, especially for export. The figure offered for this delivery was $14 a ton. By the 23rd an embargo had cut off export shipments once again.

POCAHONTAS AND TUG RIVER

Car Supply Continues Good—Labor's Indolence Causes Loss of Time—Prices Are Lower—Navy Is Requisitioning Coal.

In the weekly period ended Aug. 21 production underwent little variation, in territory supplied by the Norfolk & Western R.R. Although the loss from lack of cars was somewhat larger than it had been during the first part of August, maximum production was impossible because of the usual periods of idleness before and after pay-days, fereign holidays, etc.

If anything, prices were somewhat lower than during the preceding weeks. Aside from Lake shipments, there was not a very heavy tonnage being moved to the West.

Losses entailed by failure of miners to work full time were responsible for the failure of the mines in the Pocahontas field to speed up production.

Production is about at a maximum insofar as the car supply is concerned, although the losses from a car shortage during the last half of the month were slightly larger than in the first half. The morale of the men at the present time is said to be excellent, labor losses having their source in the usual causes. Much of the output of the Pocahontas region was still consigned to Tidewater and Inland East points, a large tonnage being required for New England, bunkerage and public utilities. The Navy is also requisitioning coal on its own terms. There was not, therefore, a very large tonnage available for foreign shipment.

Coal loading in the Tug River field declined slightly as compared with the previous week. Despite this fact railway officials were claiming practically 100 per cent car supply. Such a shortage of cars as did develop was due to congestion at the Lakes and at points in the East.

NEW RIVER AND THE GULF

Production Rate Maintained — East Gets Majority of Tonnage—Navy Commandeering Coal—Spot Quotations Are Lower.

Production in the Winding Gulf region was just about on par with the second week of the month, Virginian Railway mines outdistancing those on the Chesapeake & Ohio R.R. owing to larger car supply. The Virginian afforded a 70 per cent car supply while the C. & O. maintained about a 60 per cent run.

All Winding Gulf shipments were eastward, a part of the production going to New England, with a fairly large tonnage for bunkerage and export. However, rather a large tonnage was being commandeered by the Navy.

Production in the New River field for the week ended Aug. 21 was not so heavy as during the preceding week. Output for the week amounted to about 132,000 tons. Both Lake and New England shipments were perceptibly less. Aside from Lake shipments, small as they were, the West was securing little New River fuel. New River coal was required for bunkerage and New England in such large amounts as to limit tonnage available for export. The tonnage commandeered by the Navy also cut a hole in the quantity available for spot market.

For such free coal as there was, a price of about $14 a ton was being offered, a slight reduction from prices that prevailed during the preceding week.

VIRGINIA

Production Decreases Slightly—Labor Conditions Are Good but Cars Scarce—New England Gets Heavy Tonnage —Prices Are Firm.

Production slumped 8,000 tons in the southwestern Virginia fields for the third week of August. The total amount of coal produced was 180,600 tons, of which 31,000 tons were converted into coke, there being no cars to load that tonnage. Priorities absorbed such production as there was to a great extent, curtailing the volume of free coal available. Less coal was being shipped for export as a result of this, New England securing the tonnage which might otherwise have been exported.

Labor conditions were excellent, miners showing a disposition to work with a greater degree of regularity than had been the case during preceding weeks.

There was little or no softening of prices in the Virginia field. Quotations at the mines for export coal were $14 a ton. Approximately $10 a ton was the current quotation for coal for inland shipment.

NORTHEAST KENTUCKY

Production Declines Further—Tide Is Embargoed—Lake Shipments Continue —Prices Are Softer.

There was a continued loss in output of Northeast Kentucky mines for the period ended Aug. 21. Output amounted to 102,530 tons at the mines on the line of the Chesapeake & Ohio R.R., a 42 per cent production. A shortage of cars was mainly responsible for the loss.

A wreck on the line supplying Big Sandy mines knocked those operations out of two days' placements. Production for the corresponding week of 1919 was 64,769 tons, representing at that time approximately 60 per cent of full time capacity.

Throughout the week mines were embargoed on Tidewater shipments. Due to the slump in the car supply, shipments to the Lakes were correspondingly decreased. Producers felt that they were being discriminated against as to Tidewater shipments, as there was no ban on coal from the C. & O. R.R. districts in southern West Virginia to Tidewater.

Prices were hardly as firm as they had been during the early part of the month. Nevertheless, there was a heavy demand for coal of all kinds.

LOGAN AND THACKER

Thacker Production Gains — More Mines Resume Operations, Despite Strikers' Intimidating Tactics — Car Shortage Reduces Logan Output.

Thacker district gained in production during the third week of August notwithstanding strike and the violence in which strikers have been indulging. Logan mines lost ground because of a diminishing car supply.

At the end of the week in the Williamson field there were about 42 companies operating their mines despite the utmost endeavor of the United Mine Workers to keep such mines in idleness through a resort to intimidation. About 30 companies are still in idleness. Production was increased slightly in the Williamson field but the month may be ended with a decrease in production, owing to the fact that the Borderland mines were forced to suspend operations when the power house was recently blown up by strikers.

The week's production in Logan field was about 190,000 tons, a reduction of 30,000 tons, due to car shortage, as compared with the previous week, bringthe output under 50 per cent.

Eastern shipments were much larger, though about the only coal allowed to go to Tidewater was that destined for New England. Lake tonnage was much reduced in volume, as compared with the first half of the month, due probably to larger Eastern shipments and to curtailment of transportation facilities.

The limited car supply made it impossible to supply contract customers after meeting priority requirements.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Car Supply Is Better but Inadequate Facilities Curtail Production—Railroad Plans Development.

While Southeastern Kentucky coal operators are receiving a car supply which seldom provides for a run of more than two days each week, it has been stated that the supply of coal cars is almost up to normal, the apparent scarcity being accounted for by the wider distribution of cars at this time.

Many new mines have been established along the Louisville & Nashville and feeding lines, tonnage having grown beyond facilities of the railroads. On the Cumberland & Manchester R.R., an extension to Clay County, over twenty mining operations have been installed the past two years, while dozens of new plants have been built in Harlan and Bell Counties.

To better handle the Southeastern Kentucky coal tonnage the L. & N. R.R. is preparing to build another line around Emanuel, Knox County, this to be a part of the double track extending from Paige, Harlan County, to Corbin. At Emanuel a heavy grade slows up traffic. The new line will avoid this grade.

WESTERN KENTUCKY

Strikes Were Shortlived and Miners Have Generally Returned—Production Is Good, but Demand Is Exceeding Output — Interest Shown in Export Prospects.

It is reported by Western Kentucky operators that the strike situation is clearing and that men who were on strike have returned to work in almost all cases.

Production for the field is increasing as a result of a much better car supply. The strikes in the Indiana and Illinois fields resulted in an almost full car supply in Western Kentucky for a time. Last week the average car supply was around 52 per cent. On Aug. 23, the Louisville & Nashville, R.R. supplied 100 per cent and the Illinois Central 60 per cent, the latter line having fewer cars due to resumptions in Indiana and Illinois.

Demand is exceeding production as a result of a good movement northward while there is a continued steady movement to Nashville, Memphis and the South.

In addition to this demand there are several rumors of export movements from West Kentucky fields, principally through New Orleans. It is well known that some coal is moving through New Orleans, presumably for Cuba, while there are also reports of movement through Mobile for Cuba and South America.

While reports are being received concerning some Western Kentucky coal selling up to $8.50@$9 a ton, averages would show that on spot coal prepared sizes are $5@$5.50 a ton; on mine-run and screenings, $4@$4.50 a ton, at mines.

Railroads have been buying freely. The Kentucky Railroad Commission has decided not to make any fight on increased freight rates, the new increase in interstate rates to be allowed to apply on intrastate rates.

Western

OKLAHOMA

Retail Stocks Are Practically Exhausted—Car Shortage Is Blamed.

Retail coal dealers in Oklahoma City declare that within a month the local supply will be entirely exhausted, and that it will be practically impossible to get further supply. It is declared probable that the winter may find dealers without a ton of coal in storage and few coal bins of the consumers with sufficient fuel for the winter's needs. The advanced freight rates are expected to add fully $1 a ton to the retail price.

Inability on the part of dealers to get coal on account of the car shortage and uncertainty of transportation is chiefly blamed for the lack of fuel.

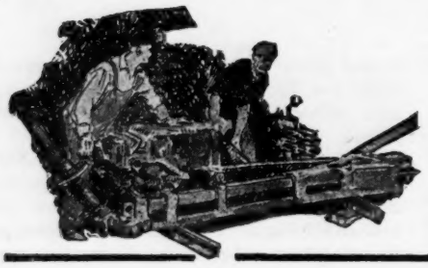
Canada

BRITISH COLUMBIA

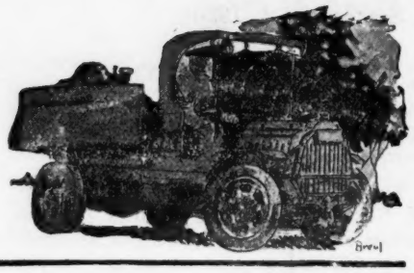
Province of Alberta Properties Are To Change Hands — Blue Diamond Coal Mines, Ltd., and Canadian Coal Fields, Ltd., Are Taken Over — Extensive Developments Planned.

At Victoria it is reported that important mining properties in the Province of Alberta are to pass into the hands of the McIntyre and Temiskaming mining companies of the Porcupine and Cobalt district, Ontario, respectively. The Ontario companies are purchasing the Blue Diamond Coal Mines, Ltd., of Brule, Alberta, a concern with an acreage of some six square miles and producing 500 tons of steam and domestic coal a day, and have optioned the Canadian Coal Fields, Ltd., whose holdings cover a large tract of coal land lying along the Hay River some thirty miles from the Blue Diamond. The Blue Diamond is capitalized at $1,500,000 and the Canadian Coal Fields, Ltd., at $10,000,000. The option on the latter is understood to be for 15 years. Engineers already are planning for considerable further development of the Blue Diamond mines, it being the intention to install the mine plant and equipment necessary to permit a production of 2,000 tons a day.

The sellers of the Blue Diamond are McKenzie, Mann & Co. This concern is also a holder in the optioned property.



Mine and Company News



ALABAMA

Birmingham—The Department of the Interior has selected the University of Alabama, Tuscaloosa, as the location for the new experimental station of the Bureau of Mines to serve the southern mineral districts, provision for which was made at the last session of Congress. The initial appropriation is $25,000, and it is understood that the station will be built and equipped as soon as the details can be arranged.

IDAHO

Grangeville—The Grangeville Coal & Development Co., at this place has been incorporated, with a capitalization of $500,000. Directors of the company are: T. B. Neal, Frank F. Duff, Jacob G. Elmers, A. Doornbos and N. B. Geary, all of Grangeville. The corporation is formed to develop coal properties.

ILLINOIS

Benton—The Orchard mine in Williamson County, which was closed by state mine inspectors until better ventilation was provided is again hoisting coal.

Carterville—Calmes & Hague, retail coal dealers and jobbers, have purchased a slope mine in Williamson County, and have perfected plans for greatly increasing its capacity. The name of the new firm is the Black Gem Coal Corporation, and the main offices of the company will be in Baton Rouge, La. The new owners have been experiencing some difficulty in securing coal for their trade and decided that the best solution would be to own their own mine. The property, which embraces about 400 acres of unworked coal land, is in the vicinity of Carterville.

Moundsville—Before the end of August the Consolidated Fuel Co., of Pittsburgh, expects to begin producing coal at its New Francis No. 1 mine at Captina, W. Va., where the company has sunk three shafts.

INDIANA

Newport—The Newport Coal Company has been organized with a capital of $500,000 to operate a coal mine. Directors are Leon P. Littlejohn, Barton S. Aikman and Carl F. Kempf.

Shelburn—The Six Veins Coal Company was recently capitalized at $200,000. The organizers and directors are Alonzo C. Owens, Paul Stratton and Joseph S. Schroeder.

Evansville—The Ayrshire Coal Co. is sinking a new shaft for a coal mine in Pike County. When completed the mine will be one of the largest producers in the State. The shaft is almost completed and the machinery is being placed.

OHIO

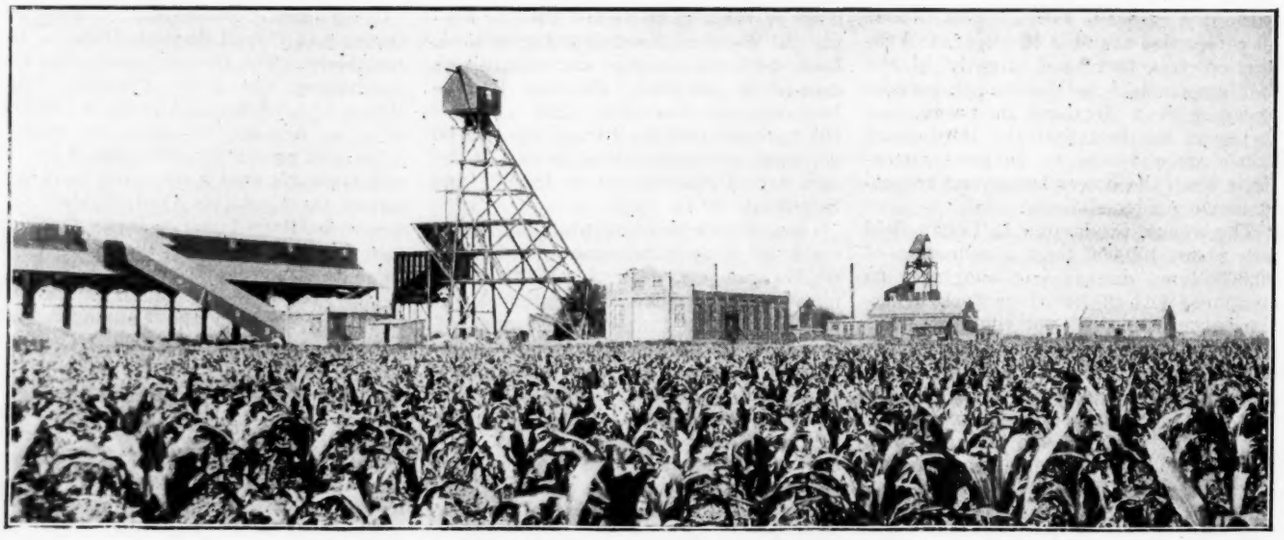
Cincinnati—C. B. Boyd, traffic manager of Harlan, Hazard and Southern Appalachian coal operators' associations, in a statement issued today declared that the supply of coal cars to mines in eastern Kentucky is nowhere near 100 per cent of requirements. His organizations are composed of 250 coal operators producing approximately 15,000,000 tons of coal annually. Mr. Boyd said that an erroneous impression had been created by a recent statement published quoting officials of the Louisville & Nashville R.R. as saying that the coal-car supply is now normal.

Furthermore he declared that the only mines at which there is a 100 per cent supply of cars are mines which have exclusive contracts to furnish coal to railroads.

Pomeroy—The work of developing the 1,700 acres under lease by the newly organized Pomeroy & Hocking Coal Co., is going forward at a rather rapid pace. Grading for a spur from the Kanawha & Michigan R.R. is going on and the track will be laid during the fall Mine development and tipple construction is going forward. The capitalization is $250,000 and Fred Essex is at the head of the company. The product will be sold through the Essex Coal Co., of Columbus.

PENNSYLVANIA

Greensburg—One thousand two hundred and ninety-one acres of coal, underlying land in Allegheny and Lower Burrell townships, have been sold by Mr. and Mrs. William Doolittle, of Edgeworth. and others to the Ben Franklin Coal Co, of Freeport, for $110,000. Various tracts are included in the sale, 709 acres being in Allegheny Township and 582 in Lower Burrell.



COAL MINING DEVELOPMENTS, STANDARD OIL CO. (INDIANA), AT CARLINVILLE, ILL.; R. W. HUNT & CO., ENGR., CHICAGO, ILL.

Somerset—Recent deals in Somerset County coal land include the merset County coal land include the following:

One hundred acres, east side Somerset and Cambria branch of the Baltimore & Ohio, known as the Charles R. Sanner property. to John E. Custer, Hooversville, for $21,000. The coal is "Sanner coal" known as Moshannon vein, being three feet in thickness, dipping toward Cox's creek.

Dr. C. J. Hamminger of Rockwood purchased the 120-acre tract along Cox's creek from A. G. Newman for $11,000. A track is now under course of construction by the Rockwood Coal Co.

Springdale—A coal handling system said to be the largest at any central station in the United States is now in operation at the West Penn Power Co.'s new $6,000,000 electric power plant at Springdale (10 miles from Pittsburgh). Operating at capacity, it will elevate, screen, pick, crush, weigh and convey to the bunkers of the boiler room, 500 tons of coal an hour.

The system, exclusive of the foundations, cost approximately $250,000 or about 4 per cent of the cost of the entire plant.

Coal mined at the company's mine across the Allegheny River at Logan's Ferry is to be brought into the shaft at the tipple through a tunnel in the coal 100 ft. under the stream. Rotary dumps at the foot of the shaft will deliver the coal from the mine cars to pockets; from here tandem skip hoists elevate it to the tipple where it is prepared.

The apparatus for handling the coal above the ground was built by Heyl & Patterson, Inc., of Pittsburgh, the hoist by the Ottumwa Iron Works, the "skips" by the Connellsville Machine & Manufacturing Co. and the rotary dumps by the car Dumper & Equipment Co., of Chicago. The system was designed by West Penn engineers.

VIRGINIA

Roanoke—The Virginia Coal & Coke Co., recently organized with a capital of $10,000,000, will develop about 70.000 acres of coal lands in Leslie, Letcher, Pike and Perry counties, Ky. In addition to the establishment of new mining communities, a railroad line will be constructed. John B. Newton is at the head of the company.

Lynchburg—The Pinnacle Block Coal Co., recently incorporated with a capital of $1,000,000, is planning for the development of large coal properties in this section. The company is headed by H. P. Adams, president; A. W. Horton is secretary.

WASHINGTON

Seattle—The Pacific Coast Coal Co., with headquarters at this place, has bought the John Campion and Jones Brothers' coal properties in the Cedar Mountain district and also acquired the adjoining Laloli farm. The Pacific company is planning the expenditure of half a million dollars during the next 12 months to make the re-opened mine one of the largest shippers in the Northwest.

The purchase of the Campion property brought out the fact that the faulted seam, on what used to be known as the Colman mine, had been located by mining engineers 1200 ft. back from the point where mining operations had been abandoned.

The new mine is located six miles above Renton on the Columbia & Puget Sound, only 18 miles distant from Seattle.

Coal in the Cedar Mountain mine is of a grade closely approaching that at Black Diamond, and is expected to prove desirable for domestic and steam use.

WEST VIRGINIA

Huntington—Preliminary work has been started on the 18-mile extension of the Norfolk & Western Ry. from Lenora up Pigeon Creek to Rockhouse in Mingo County, and it is now announced by the United Thacker Coal Co., owning virtually all the coal land which will be reached by the extension, that it will be completed and ready for operation by July, 1921. It is estimated that it will cost between $2,000,000 and $3,000,000 to construct the extension. Much of the coal territory which will be tapped by the Pigeon Creek branch was leased to Huntington capitalists and others on the strength of the building of the extension. The Kountz interests of New York control the United Thacker Coal Co.

Morgantown—Early development of about 13,000 acres of coal land—known as the Cochran property—in three different tracts is being negotiated for by the Valley Camp Coal Co., in which James A. Paisley, of Cleveland, is largely interested. The present owner of the coal is M. M. Cochran of Uniontown, Pa. It is estimated that the purchase price will be in the neighborhood of $6,640,000 as it is understood that the coal will be sold at the price of $500 an acre. The coal lands in the Cochran group are in three different locations; one tract of 2,456 acres being between Dent and Scott's Run; another of 5,000 acres between Scott's Run and Robinson's Run and another of 6,600 acres near Cassville. The Robinson's Run territory is to be developed by Mr. Paisley and associates through the Monongah & Northwestern R.R. recently organized.

Charleston—Figures compiled show that mines in the Pocahontas region of West Virginia produced only about 50 per cent of capacity during the first half of 1920 because of a car shortage. The mines produced only 7,145,238 tons, compared with 13,000,000-ton rating. Lack of cars curtailed output to the extent of 43 per cent. The combined loss from labor shortage and mine disability was only about 3 per cent.

Huntington—The Interstate Coal & Dock Co., of Wisconsin, which has had a rapid growth in the last few years, recently figured in a deal reaching $500,000 when it acquired all the plants, assets and properties of the Maxine Coal Co. The Maxine company was organized about three years ago, and controls about 1,400 acres in Boone County, W. Va. The Interstate company recently acquired the holdings of other companies in the high-volatile regions of West Virginia and plans, it is said, to shortly consolidate all of its holdings in southern West Virginia under one management. The output of the various mines now owned by this company is shipped largely to the Lakes and the Northwest.

The Interstate Coal and Dock Co. is an extensive dock operator at the Head-of-the-Lakes.

Operating Conditions at Coal Mines in Indiana, July, 1920

PREPARED BY JONAS WAFFLE, SECRETARY INDIANA COAL TRADE BUREAU

Railroads on Which Mines Are Located	District	No of Mines	Tons Produced	Full-Time Capacity (Tons)	— Tons Lost and Causes Therefor — Total All Causes	Car Shortage	Labor Trouble	Mine Disability
Big Four	Terre Haute	6	64,110	120,597	56,487	28,431	25,903	2,153
B. & O. S. W.	Vincennes	2	29,596	51,386	21,790	7,749	8,117	5,924
	Clinton	25	175,431	338,342	162,911	85,551	70,710	6,650
C. & E. I.[1]	[2] Sullivan	16	162,427	287,772	125,345	71,865	45,205	8,275
	Total	41	337,858	626,114	288,256	157,416	115,915	14,925
C. I. & W.	Dana	1	8,988	10,168	1,180	.....	1,180	.....
Cent. Ind.	Brazil	1	4,128	4,738	610	.....	610	.....
	Clinton	14	211,276	338,703	127,427	37,887	85,923	3,617
C. T. H. & S. E.[3]	Linton	26	239,747	404,118	164,371	61,775	80,986	21,610
	Total	40	451,023	742,821	291,798	99,662	166,909	25,227
E. & I.	Clay City, Petersburg	11	90,947	190,380	99,433	51,459	36,195	11,779
E. & E.	Evansville	2	10,216	11,413	1,197	8	1,042	147
E. S. & N.	Evansville	4	22,752	28,008	5,256	1,523	3,434	299
Ill. Cent.	Linton	6	57,828	109,820	51,992	35,885	14,101	2,006
Monon[4]	Linton	21	167,469	306,985	139,516	4,806	110,116	24,594
	[5] Main Line	20	134,271	318,432	184,161	109,054	64,127	10,980
P. C. C. & St. L.	[6] Vincennes	21	215,420	730,339	514,919	266,858	188,671	59,390
	Total	41	349,691	1,048,771	699,080	375,912	252,798	70,370
	Ayrshire	7	64,663	114,348	49,685	31,974	13,781	3,930
Southern	Boonville	8	57,524	74,656	17,132	1,834	14,676	622
	Total	15	122,187	189,004	66,817	33,808	28,457	4,552
Totals		191	1,716,793	3,440,205	1,723,41[2]	796,659	764,777	161,976
Totals for months ending June 30, 1920		191	2,173,036	3,601,630	1,428,594	979,283	214,983	234,327

(1) Two mines served by two railroads. (2) Includes all mines South of Terre Haute. (3) One mine served by two railroads. (4) Four mines served by two railroads. (5) Includes all mines on St. Louis and Michigan Divisions. (6) Includes all mines on Vincennes Division and Dugger Branch.

Recent Patents

Cut-Out Switch for Mine Trolleys. John Racosky, Jerome, Pa., 1,343,475. June 15, 1920. Filed April 28, 1917. Serial No. 165,169. Renewed March 13, 1920. Serial No. 365,626.

Coal Chute. John E. Hyatt and Hans J. Moen, Stevens Point, Wis., 1,343,675 June 15, 1920. Filed Dec. 14, 1916. Serial No. 137,000.

Mining Machine (Chain Guard). Charles E. Davis, Chicago, Ill., assignor to Goodman Manufacturing Co., Chicago, Ill., 1,344,201. June 22, 1920. Original application filed Oct. 6, 1910. Serial No. 585,549. Divided and this application filed April 15, 1912. Serial No. 690,697. Renewed Nov. 12, 1919. Serial No. 337,625.

Coke-Oven-Door Mechanism. Louis Wilputte, New Rochelle, N. Y., assignor of two-thirds to Alice A. Wilputte, New Rochelle, N. Y., 1,344,218. June 22, 1920. Filed Oct. 16, 1918. Serial No. 258,332.

Coaling Barge. Frederick A. Sweet, Salt Lake City, Utah, and George G. Jamieson, Oaklad, Cal., 1,344,459. June 22, 1920. Filed Nov. 1, 1919. Serial No. 334,988.

Coaling Device. Stewart H. Buchanan, Beaumont, Texas 1,344,481. June 22, 1920. Filed Sept. 22, 1919. Serial No. 325,437.

Miner's Lamp. Anthony Coyne and Lee Hash, Fork Ridge, Tenn., 1,344,867. June 29, 1920. Filed April 19, 1917. Serial No. 163,149.

Carrier for Surveying Instruments. Cornelius G. Hastings, Glendale, Cal., 1,344,947. June 29 1920. Filed Feb. 4, 1918. Serial No. 215,308. Renewed Nov. 17, 1919. Serial No. 338,662.

Automatic Mine-Door Operating Mechanism. William Crooks, Aldrich, Ala., 1,345,074. June 29, 1920. Filed July 17, 1919. Serial No. 311,633.

Underfeed Stoker Furnace. Joseph H. Roach, Brookline, Pa., 1,346,465. July 13, 1920. Filed March 22, 1919. Serial No. 284,284.

Coal-Mining Machine. Seward N. Mighell, Chicago, Ill., 1,346,966. July 20, 1920. Filed July 10, 1916. Serial No. 108,351.

Miner's Cap. Martin T. McDonough, Wheeling, W. Va., 1,347,046. July 20, 1920. Filed Jan. 16, 1920. Serial No. 351,752.

Valve for Coke Ovens. William E. Roberts, New York, N. Y., assignor, by mesne assignments to Foundation Oven Corporation, New York, N. Y., 1,347,056. July 20, 1920. Filed March 17, 1919. Serial No. 283,106.

Industrial News

New York, N. Y.—The Uehling Instrument Co., 71 Broadway, New York City, will exhibit their fuel saving devices at the Chemical Show, Grand Central Palace, New York, Sept. 20-25, and the National Association of Stationary Engineers' Convention, Milwaukee, Wis., Sept. 13-17.

The principal products to be displayed will be the new "Style U" CO_2 recording equipment. This instrument keeps tab continuously on the largest item of waste in the boiler room, namely the heat discharged up the chimney, thus enabling the operators to make adjustments that will reduce this loss to the minimum. A gage on the front of each boiler serves as a working guide for the firemen and a recorder in the office of the engineer or superintendent simultaneously makes a permanent record of the performance of each boiler furnace. Other boiler-room instruments, including Uehling pyrometers and draft gages, will also be exhibited.

Easton, Pa.—The Pennsylvania Pump & Compressor Co. announces the opening of additional sales offices as follow: Buffalo, 788 Potomac Ave., J. B. Laird, Mgr.; Cleveland, 232 St. Clair Ave., N. E., L. J. Wakefield; St. Louis, 1956 Broadway, Carby Supply Co.; Minneapolis, 423 Fifth Ave., South, L. E. Pallard Co.; Omaha, 604 First Natl. Bk. Bldg., L. E. Pallard Co.

New York, N. Y.—The National Industrial Conference Board announces its new location, 10 East 39th Street. Business executives, economists and others interested in the Board's work will find there much valuabl information on industrial and economic subjects.

New York, N. Y.—The Iron Trade Products Co. has opened a branch office, Suite 1714, Cortlandt Bldg., 30 Church St. Frank M. Welsh is in charge as District Sales Manager.

Traffic News

Supreme Court of Tenn., Decision—Case of Roth Coal Co., Knoxville, vs. L. & N. R. R. Co. The court holds that market value at destination is measure of railroad liability for confiscation or loss of coal in transit.

Illinois Intrastate Rates.—Interstate Commerce Commission has assigned for hearing before Commissioner McChord Sept. 8, at Chicago, the matter of the order issued by the public utilities commission of Illinois, Aug. 10, on intrastate freight and passenger rates.

Commerce Commission is expected to take an early and definite stand on question of intrastate rates. So far nine states have unreservedly approved and allowed increases in rates as reflected in new tariffs filed by railroads, and seven have either postponed action on the question or have granted freight increases but not passenger increases.

The Ohio Utilities Commission has amended the advanced freight tariffs filed, under the provisions of the freight increase. The railroads, in an effort to maintain the old 40c. differential between Ohio and Kanawha district of West Virginia really made an advance of 52 per cent in the freight rates from various Ohio points. This was rescinded and under the new rate the freight from the Hocking Valley to Columbus will be $1.40 and to the Lakes the increase will be from $1.50 to $2.26 for commercial coal and from $1.27 to $1.69 on Lake coal. The charge for loading Lake coal will be increased from 6 to 8½c. according to recent announcement.

Personals

Richard Bather, managing director of Richard Bather & Co., Ltd., 6 Castle St., Liverpool, England, who is associated with the Knickerbocker Corporation, 29-31 Liberty St., New York, has been making a short trip through the coal fields.

William Reed, of Denbo, Washington County, Pa., superintendent of the Reliance Coke Co. plant at that place, has been promoted to the position of assistant general manager of the company with headquarters at Pittsburgh, Pa. **David Boyer,** of Denbo, yard foreman at the same plant, has been appointed superintendent to succeed Mr. Reed.

C. H. Todd has resigned his position as sales manager of the Boone Coal Sales Co. and will represent the Fort Dearborn Coal Co. at the Cincinnati office.

C. R. Thomas has taken the position of sales manager with the Boone Coal Sales Co., of Cincinnati, made vacant by the resignation of C. H. Todd.

Oscar Cartlidge is now connected with the Raleigh Wyoming Coal Co., Charleston, W. Va., as assistant to the vice-president and general manager, Carl Scholz. The company is developing two large mines in this vicinity.

Robert M. Medill, formerly with the J. K. Deering interests and the Peabody Coal Co., has been appointed by Governor Lowden of Illinois as state director of the Department of Mines and Minerals in Illinois. He succeeds the late Joseph Thompson, who died several weeks ago at the home of one of his sons in Ward, Ill. Mr. Medill recently resigned the superintendency of the Kathleen mine of the Union Colliery Co., of St. Louis, located at Dowell. He is the son of Duncan Bell Medill, general superintendent of the J. K. Deering Coal Co., of Clinton, Ind.

M. H. Detweiler, formerly chief engineer of the Kathleen mine of the Union Colliery Co. near Duquoin, Ill., has been promoted to succeed R. M. Medill, the former superintendent of the plant. Through a regretable error, a personal was published in the Aug. 5, 1920, issue of Coal Age in which the wrong initials were given in referring to Mr. Detweiler.

Trade Catalogs

Metal Melting Pots. The Cutler-Hammer Mfg. Co., Milwaukee, Wis. Publication 826. Pp. 2; 8½ x 11 in.; illustrated. Description of method of operation and maintaining temperature at desired point.

R. F. Adjustable Speed Motors. General Electric Co., Schenectady, N. Y. Bulletin 41,021 A. Pp. 8; 8 x 10½ in.; illustrated. A second edition of Bulletin 41,021 A, superseding Bulletin 41,021 and describing latest design of R F Form A, d.c. adjustable speed motors rated from 2-3 to 50 intermittent hp.

Deflection Potentiometer. General Electric Co., Schenectady, N. Y. Bulletin 46,112. Pp. 2; 8 x 10½ in.; illustrated. A second edition describing design for giving accuracy between precision potentiometer and laboratory standard instrument.

Battery Charging Equipment. Cutler-Hammer Manufacturing Co., Milwaukee, Wis. Publication 830. Pp. 24; 8½ x 11 in.; illustrated. Describes C-H equipment for charging all electric vehicles, including trucks, mine-battery locomotives, etc.

Announcement. The George J. Hagan Co., Pitsburgh, Pa. Folder. Pp. 4; 8½ x 11 in.; illustrated. An announcement regarding the company's new Liquid Fuel Department.

Yarway Blow-Off Valves. The Yarnall-Waring Co., Chestnut Hill, Philadelphia, Pa. Bulletin B 410. Pp. 16; 6 x 9 in.; illustrated. Descriptive of the company's Yarway seatless and double tightening blow-off valves. Copy sent on request.

Publications Received

Illinois State Geological Survey. Department Registration and Education. Bulletin 36. Illustrated; pp. 188; 7 x 10 in. Year book for 1916 also Administrative Report and economic and geological papers.

Indicators for Carbon Dioxide and Oxygen in Air and Flue Gas. By L. H. Milligan, D. O. Crites and W. S. Wilson. Department of the Interior. Bureau of Mines. Technical Paper 238. Illustrated; pp. 23; 6 x 9 in.

Coming Meetings

American Mining Congress will hold its annual meeting at Denver, Col., Nov. 15. Secretary, J. F. Callbreath, Munsey Building, Washington, D. C.

New York State Coal Merchants' Association will hold its annual meeting Sept. 9, 10 and 11 at Richfield Springs, N. Y. Treasurer, G. W. F. Woodside, Albany, N. Y.

The Rocky Mountain Coal Mining Institute, in conjunction with the Colorado Metal Mining Association, the local chapters of the American Mining Congress and the American Institute of Mining & Metallurgical Engineers, and the International First Aid Meet will hold its annual meeting Sept. 9, 10 and 11 at Denver, Col. Secretary, F. W. Whiteside, Denver, Col.

National Safety Council will hold its 1920 congress on Sept. 27 to Oct. 1, inclusive, at Milwaukee, Wis. General Manager. C. W. Price, Chicago, Ill.

Oklahoma Coal Operators' Association will hold its annual meeting Sept. 14, at McAlester, Okla. Secretary, F. F. LaGrave McAlester, Okla.

The Sixth National Exposition of Chemical Industries will be held in the Grand Central Palace, New York City, Sept. 20-25. The Fuel Economy Division has been added this year.